Aethra

# AVC 500

## Use and Installation Manual

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Cod. 074111020GB Rev. 0 – July 2006.

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# SAFETY RULES

| | |
|---|---|
| | DEVICE IN CLASS I<br>Always connect to a grounded socket. |
| | To guarantee continuous protection for operator safety, only use the mains adapter supplied with the device. |
| | WARNING: for power supply connection use an easily accessible outlet located near the device.<br>Never remove the mains plug for permanent connection. |
| | Connect the ISDN port to a network termination only (NT1).<br>It is absolutely forbidden to connect the system to an outdoor telecommunication line. |
| | Connect the LAN port to an internal LAN circuit only. It is absolutely forbidden to connect the system to an outdoor telecommunication line. |
| | To guarantee continuous protection for operator safety, make sure that the Network interface is always inserted .<br>If the Network Interface is not in place, do not under any circumstances remove the cover. |
| | This equipment will be inoperable when mains power fails |
| | The change from cold to hot environments can cause the formation of condensate inside the device. To avoid malfunctioning, wait at least 2hours before connecting the device to the supply mains. |
| | In case of fire, absolutely avoid using water to extinguish it. |
| | WARNING: RISK OF ELECTRIC SHOCK<br>The power supply used by this device involves lethal voltage levels. |
| | Do not access internal parts of the device (and/or of the power supply unit). |
| | If objects or liquids penetrate inside the device, immediately disconnect the power supply cable. Before using the device again, have it checked by specialized staff. |
| | Refer to qualified staff for service. |
| | In case of intervention, always check that the power supply has been completely and successfully disconnected. |
| | Microphone POD cable must not be routed under carpets, through walls, within risers, or as part of building wiring systems. |

# INSTALLATION WARNING FOR RACK MOUNT USAGE

1. Tmra – The manufacturer's maximum recommended ambient temperature is 40°C.
2. Elevated Operating Ambient Temperature – If installed an a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be grater than room ambient. Therefore consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).
3. Reduce Air Flow – Installation of equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
4. Mechanical Loading – Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
5. Circuit Overloading – Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
6. Reliable earthing – Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connection other than direct connection to the branch circuit (e.g., use of power strips).

# WARNINGS

| | |
|---|---|
| | CAUTION: many of the components used in this device are sensitive to electrostatic charge. |
| | In case of manipulation of the connection cables, disconnect the power supply and avoid direct contacts with the connector terminals. |
| | When handling electronic components, to eliminate any static electricity touch a grounded surface. If possible, wear a grounding arm band. |
| | Failure to comply with these warnings could cause permanent damage to device. |

# REGIONAL REQUIREMENT

| | |
|---|---|
| | Laitte on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan. |
| | Apparatet må tilkoples jordet stikkontakt. |
| | Apparaten skall anslutas till jordat uttag. |

## ENVIRONMENTAL WARD

| | |
|---|---|
| | CAUTION: risk of explosion if batteries are replaced by an incorrect type. Dispose of used batteries according to the instructions. |
| | The batteries of this equipment must be recycled by a company in charge of this activity, a company qualified for the disposal of dangerous materials or by using containers provided for the separate collection of worn out batteries. |
| | This equipment may not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal or the dealer where you purchased this product. |

## CLEANING

| | |
|---|---|
| | To clean the device use a soft cloth either dry or moistened with a little detergent. Never use any type of solvents, such as alcohol or gasoline, to avoid damaging the finish. |

## EN55022 Classe A COMPLIANCE

| | |
|---|---|
| | This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may required to take adequate measures. |

## FCC15 Classe A COMPLIANCE

| | |
|---|---|
| | This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. |

# About this manual

**Used symbols and syntax**

**! Symbol related information must be followed very carefully**

1.
2. Instructions in a enumerated list must be accomplished following the reported order

**NOTE** **Associated instructions give useful information**

“Name” Name refers to particular hardware or software function

**Remote control**

Remote control controls all system functions (see “Remote control” chapter)
Remote control uses two 1.5V AAA alkaline batteries, and an alert appears on the status bar when batteries are low; user can change the batteries opening the cover on the remote control rear.

**Insertion of the characters in the alphanumeric fields**

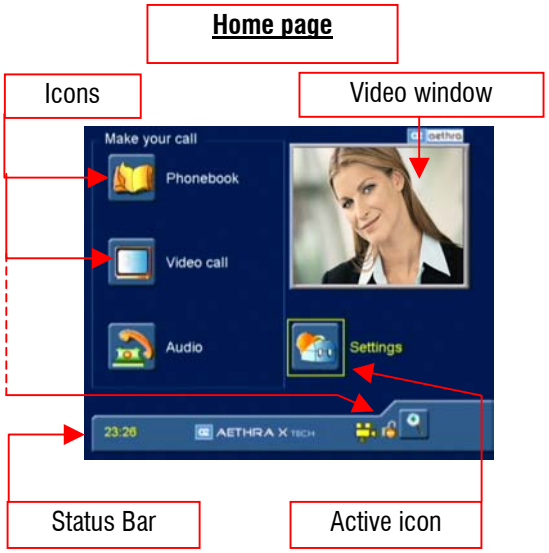
For numbers or letters insertion it is possible to use the alphanumeric keyboard of the remote control or, alternatively, the virtual keyboard by pressing the “OK” key once positioned on the alphanumeric field.
Select the “Esc” key in the virtual keyboard to close it.

# Information about graphic user interface (GUI)

All system configurations and functionalities can be activated inside GUI (Graphical User Interface) shown on the monitor.

**Main elements inside a MENU page:**

PAGE – any page inside graphic user interface (GUI).
HOME PAGE – main GUI page;
from here you can access all system functionalities and/or configurations.
ICON - image or symbol inside a page, showing an available functionality or setting status. STATUS BAR– the graphic horizontal bar displayed in all pages lower end. Inside the bar, depending on the page, images or symbols show available functionalities or settings status.




**Inside a Menu you can:**
SELECT AN ICON – to choose an icon use arrow keys, yellow frame showing the selection.
To activate the desired functionality, press OK.

**Main functions of the system can be performed using:**

- icons in the graphical user interface.
- remote control keys

**In configuration menus, these icons will always appear:**

| | |
|---|---|
| | Back to previous page |
| | Back to Home Page. |

# About AVC 500 system

## Preliminary

The system supports the complete functionality and all associated configurations that are described in this manual, even if they are not included in the series production, as long as they are appropriately licensed.

## General introduction

AVC 500 is a high-performance system at the cutting-edge of set-top technology. It is ideal for medium and large-sized videoconferencing sessions that require enhanced audio and video quality.
The integrated Multipoint Conferencing Unit (MCU) connects up to 8 sites in mixed mode (ISDN and IP).

**Highest Quality**

Crystal clear audio and superior video quality at 4Mbps.

**Enhances Collaboration**

Built-in MCU connects ut to 8 remote sites with Continuous Presence function in mix mode ISDN and IP.

**Convenient**

Fully featured set top solution with embedded XGA ports and support for 3 monitors.

**Supports multiple connectivity**

Available in several versions: for connections up to 768 kbps over ISDN BRI and 4 Mbps over IP; as well as connections up to 2 Mbps over ISDN PRI or over leased lines (X.21, V.35, RS366, RS449, RS530, G.703).

**Simultaneous Dual-Stream video**

Convenient XGA input and output ports provide one-step PC plug-in for simultaneous dual-stream video and live PC presentations with enhanced images.

**Easy to configure**

Flexible, simple architecture enables easy re-configuration of the system. Ready to upgrade simply by adding different cards. Change the channel aggregator card and upgrade from BRI to PRI in one easy step!

**Customizable Graphic User Interface**

The user is able to choose layouts and colours from a variety of alternatives.

# Features at a Glance

- XGA input and output ports (option).
- Dual-stream video(option).
- Support for three monitors.
- Supports ISDN, IP-H323, SIP, PPPoE, leased networks(option).
- Mixed mode MCU with dial-out/dial-in configuration.
- Embedded PowerPoint® presentations.
- Support for PTZ camera and document camera.
- Supports AMX™ and Crestron™ protocols for keyboards and control panels.
- T.120 for multimedia.
- Full-duplex audio with echo cancellation.
- Automatic Noise Suppression.
- Remote diagnostics and management.
- Web streaming function.
- Wireless LAN support.

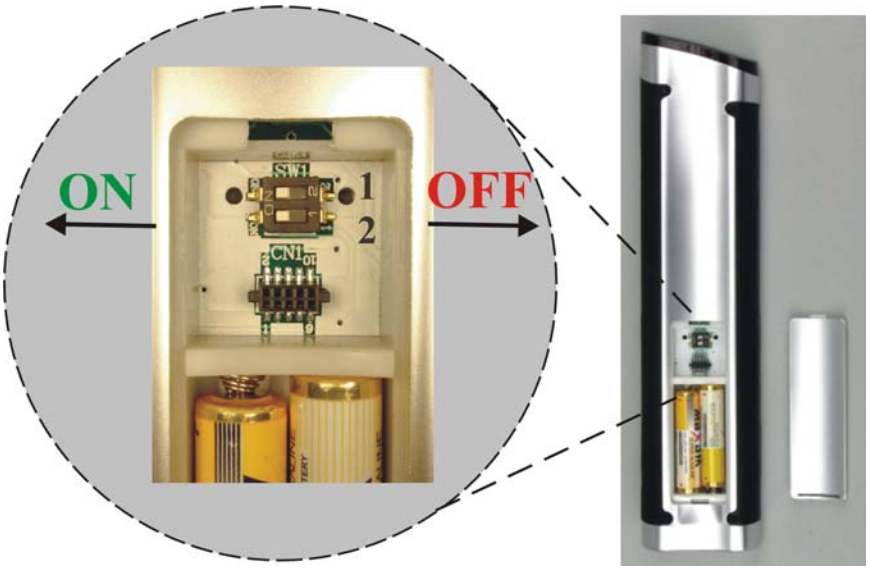
# AVC 500 system components

Main components of the AVC 500 are:

- H.320/H323 Codec.
- High Band Microphone POD.
- Power supply whit cable.
- Infrared remote control.
- User manual.
- Monitor cables.
- RJ45-RJ45 cables.
- Packaging.

# Remote control

**Note** **In order to avoid un-desired controls reaching other systems, user can modify transmission power from 2mt to 20mt (default) by means of a switch in the battery space:**
**Move both the Switches to-ON position → 20mt**
**Move both the Switches to-OFF (1 2) position→ 2mt**




Remote control keys:

| Key | Description function |
|---|---|
| | **"ON/OFF" Key**<br>It turns on and off the system.<br>It puts the system in "screen saver" mode.<br>It restarts the system from the "screen saver" mode.<br>By pressing the key results in opening a window of notice:<br>• **YES.** Turn off the system.<br>• **NO.** To enter "screen saver" mode. |
| | **"SEND" Key**<br>It sends slides/still pictures. |
| | **"SLIDE" Key**<br>Opens the integrated PPT presentation. |
| | **"FAR/NEAR" Key**<br>Select the remote o local camera for PTZ. |
| | **"DUAL" Key**<br>• Once in connection, it activates the DualVideo functionality: the system asks for the second video source.<br>• By pressing again the same key is possible to stop the DualVideo, without disconnecting the call. |
| | **"PIP" Key**<br>• Activates/deactivates PIP (left upper corner being the PIP default position).<br>• If enabled, moves the PIP ( See "Control panel" paragraph). |

**“PRIVACY” Key**

- Once in connection the system does no send any more video live but the customizable video privacy image.
- Not in connection activates/deactivates:
  **Video privacy.** As above
  **Don't disturb.** System does not answer to incoming calls (busy for the remote)

**“Back” Key**

Comes back to the previous interface page, without storing any parameter eventually modified.

**“HOME” Key**

Comes back to the Home interface page, saving any parameter eventually modified.

**“SELF” Key**

Activates/deactivates selfview.

**“Help” Key**

Activates/deactivates on line help.

**“(- / +)” Keys**

- ” **ZOOM**”: sets the camera zoom.

**“Auto” Key**

- Activates/deactivates the autotracking function.

**“(- / +)” Keys**

- “**VOL**”: sets the audio level.

**“Mute” Key**

- Activates/deactivates audio transmission.

“**Arrow Keys**”:

- allow navigation inside interface pages and camera movements.

**“OK” Key:**

- confirms actual selection.

**“Call” Key:**

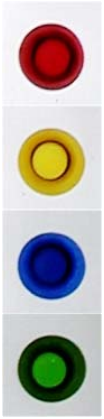
- Allows to call or receive an incoming call.

**“Disconnect” Key:**

- Disconnects a call.

**"Phonebook” Key:**

- Opens the phonebook.



**"Function” Keys**

- Red. Camera choice shortcut.
- Yellow. Camera choice shortcut.
- Blue. H.243 function shortcut.
- Green. Received slides/still images visualization shortcut.

**“C-DEL” Key**

Deletes characters

**“CAMERA” Key**

- Selects a video input.
- Usable as camera choice shortcut.

**( see Audio-Video-Data chapter, customize cameras)**

**“MEMO-PRESET” Key**

Saves the camera presets.

**“SEL-PRESET” Key**

Selects the camera presets.

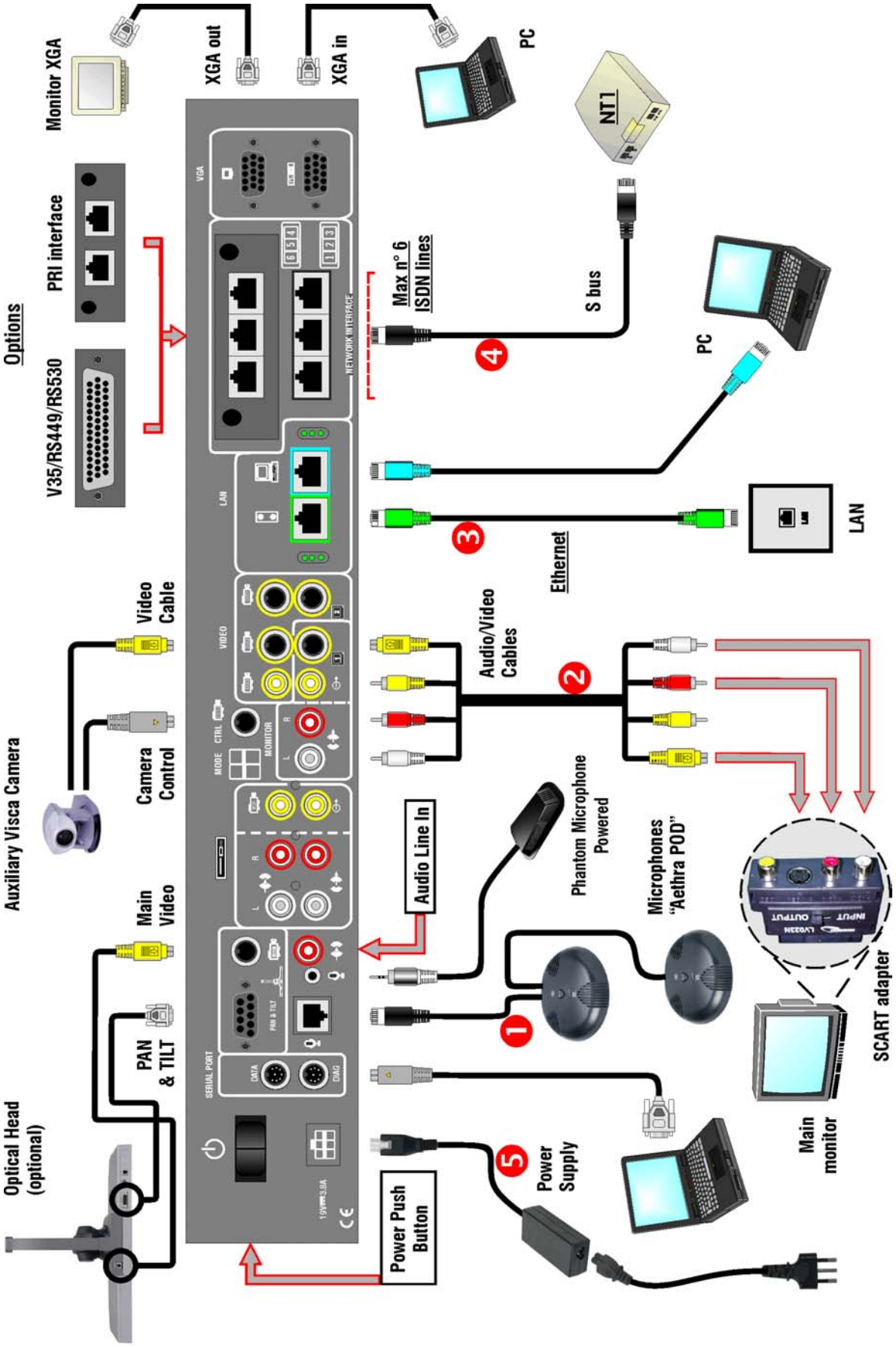
**“Alphanumeric” Keys**

It allows letters and numbers insertion.
“See the chart”

**Remote control alfa-numeric symbols to keys association**

| KEY | SYMBOLS | | | | | | |
|---|---|---|---|---|---|---|---|
| **1** | 1 | A | B | | | | |
| **2** | 2 | C | D | | | | |
| **3** | 3 | E | F | G | | | |
| **4** | 4 | H | I | J | | | |
| **5** | 5 | K | L | M | | | |
| **6** | 6 | N | O | | | | |
| **7** | 7 | P | Q | R | | | |
| **8** | 8 | S | T | | | | |
| **9** | 9 | U | V | W | | | |
| **0** | 0 | X | Y | Z | | | |
| * | . | * | @ | _ | = | - | + |
| # | # | & | : | / | \ | | |

# Cabling Scheme



# Videoconference tips

Tips to improve a virtual meeting, to optimize audio-video transmission and reception, and to fully enjoy all videoconference benefits.

**Optimal Meetings**

- Before starting a videoconference be sure that all you need is ready: addresses or numbers to call, lightning, microphones.
- Connect and test all peripherals eventually needed (document camera, VCR, PC/Laptop)
- Use natural gestures as in a real meeting
- Speak in your normal voice

**Optimal Video**

- Avoid contemporaneous usage of natural (changing) and artificial lightning
- Avoid direct artificial lightning
- Avoid “mobile” backgrounds (curtains moved by the wind)
- Try to fill the screen as much as possible with persons, not backgrounds

**Optimal Audio**

- Place the microphone on the table in front of people (use 2 microphones in case of big tables)
- Do not place papers or other objects in front of the microphone
- Don’t rustle papers or tap on the table or microphone
- Mute the microphone before moving it.
- Speak in your normal voice

# System positioning and installation

**All operations should be carried out without connection to main power supply.**
**Connection to main power supply should only be performed after complete parts assembly.**

Place the System in the desired location, and connect the follow equipments:

1) Connect the “Aethra POD” Microphone (see cable 1).
2) Connect System Audio/Video Ouputs to main monitor (see cable 2).
3) Connect Video Input.
4) Connect the LAN input to the network (see cable 3).
5) Connect the ISDN inputs to the network terminations. When connecting each ISDN access to the system connectors, please take note of the corresponding telephone numbers ( see cable 4).

**Connect the ISDN input (ISDN connector or network interface) only to a network termination (NT1). Do not connect the equipment to an external telecommunications line.**

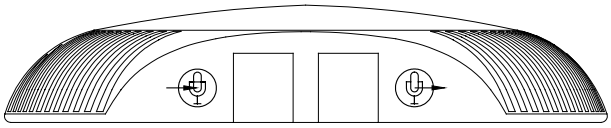
6) Connect supplementary audio or video equipments to the available inputs/outputs.
7) Connect the power supply (see cable 5).
8) Switch ON the TV monitor.
9) Press the switch on key on the System rear.
10) Wait for the main user interface to appear.

The system status LED on the front means:

**LED on**: System is on and normally operating.
**LED flashing**: System power is on, but the System is in “standby” mode.
**LED off**: System power is either off or not connected.

# Connecting the Aethra POD

How to connect, the High Band Pod microphone.



**High Band POD**

1) Connect the High Band POD output to the rear panel of the System.
2) In case a second High Band POD is used, connect second POD output to first POD input.

**Note**
**Max two (2) Aethra Pods can be used.**

# Optical head - Optional

As a room camera, you can use an optical head. Compatible optical heads are the ZeusD100 and ZeusD30.
For installation information, please see the “Cabling Scheme” section.
For configuration information, please see the “Audio-Video Data” – “Cameras” – “Driver” section.

# Camera Options

In addition to (or in place of) the optical head, you can use several external moveable cameras, either as room cameras or auxiliary input cameras. You will need to:

1. Connect the camera to the desired input.
2. Connect a Visca (pin-to-pin) cable from the Codec’s “Ctrl Video 1” connector to the camera’s Visca input.

Select as “Room” camera the correct driver from the drop-down menu.
Compatible cameras are:

- CanonVC-C3
- CanonVC-C4
- Sony D30
- Sony D100

For configuration information, please see the “Audio-Video Data” – “Cameras” – “Driver” section.

# Cascading Camera Option

You can create a cascade of moveable cameras connected to the Codec:

1. Connect cameras to the desired video inputs
2. Connect a pin-to-pin Visca cable from the “CTRL Video1” output of the Codec to the Visca input of the first camera
3. Connect a crossed Visca cable from the Visca output of the first camera to the Visca input of the second camera
4. Repeat the previous step for all cameras, up to the maximum number of video inputs supported by the Codec

For configuration information, please see the “Audio-Video Data” – “Cameras” – “Driver” section.

**! For cascading cameras, the cascade must begin at input one.**
**For example: Out video camera id.1->”V.Input1 Codec”,**
**Out video camera id.2->”V.Input2 Codec”,**
**For the “V.input1” – “V.Input XX” inputs you can select only one driver, so all cascading moveable cameras must be the same type (ex. all CanonVC-C3, or all Sony D30)**

In the same page, enable camera movements by checking the “Move” option.

# Operation and use

This section of the manual explains the basic functionality of the System.
It is assumed that the system is correctly installed.

# First time equipment is switched on

When the equipment is switched on for the first time, the following will appear on the screen:

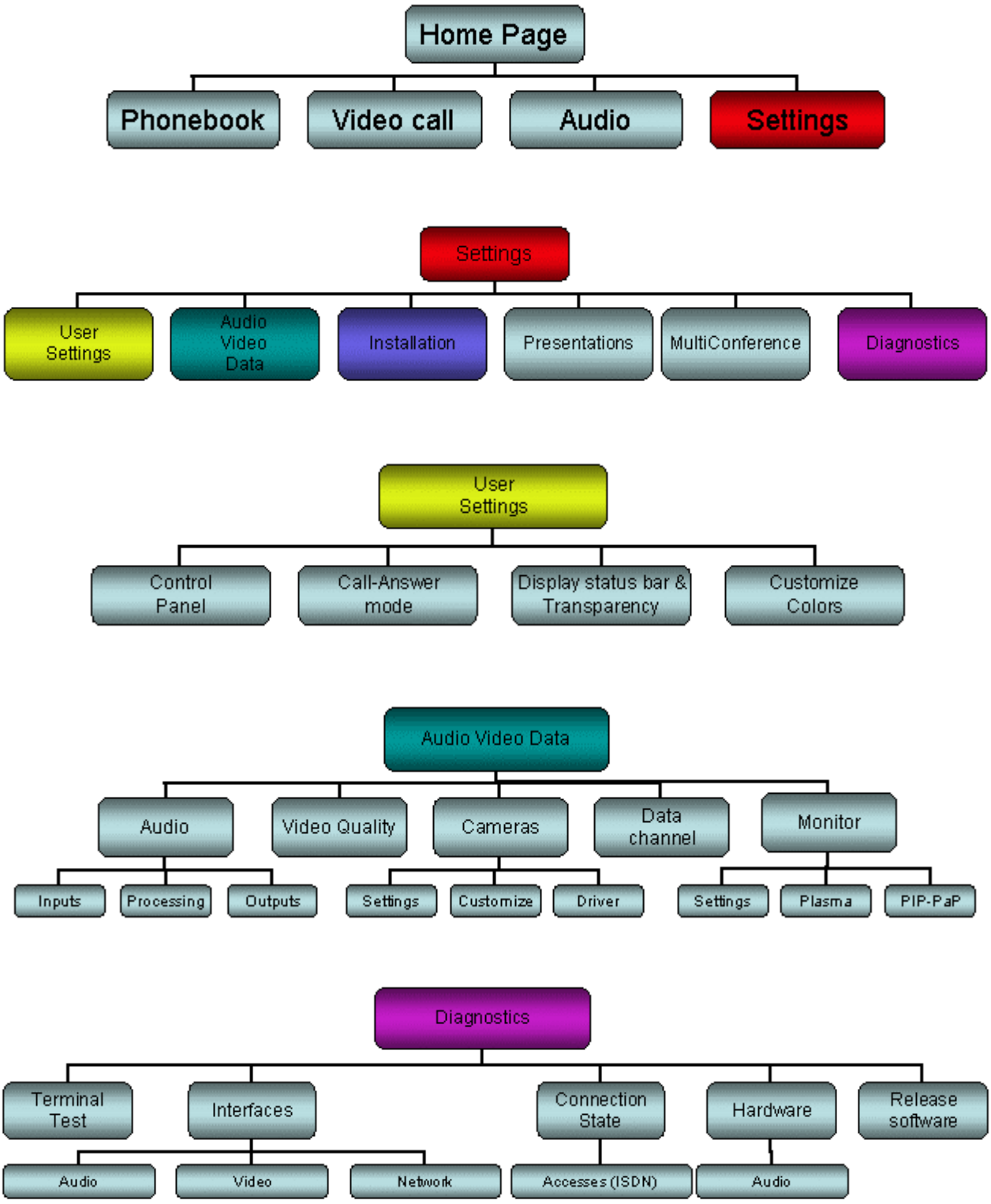
This allows the user to select :

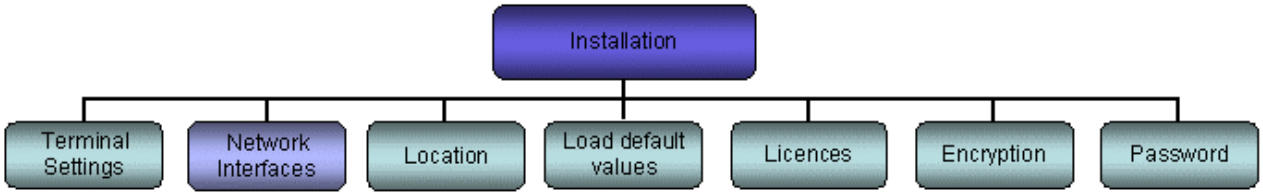
- Terminal Name
- Country
- Language
- PBX
- Audio Coding
- Video Standard
- Selection Tone
- Camera Frequency

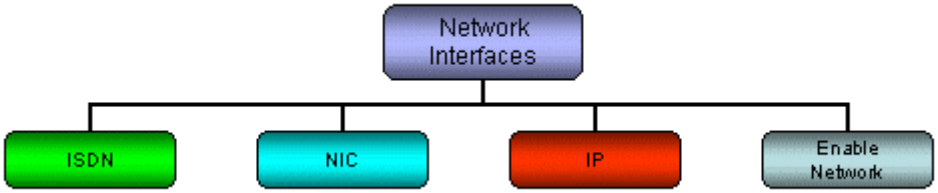
- **Date and time settings**

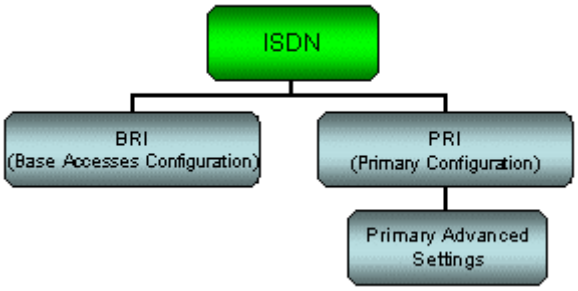
  By means of arrow keys select time on the control bar, and press OK: insert date and time.

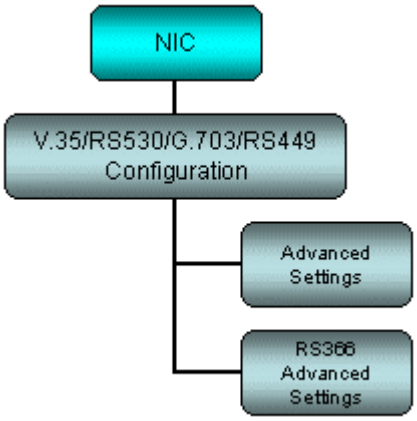
## Menu structure

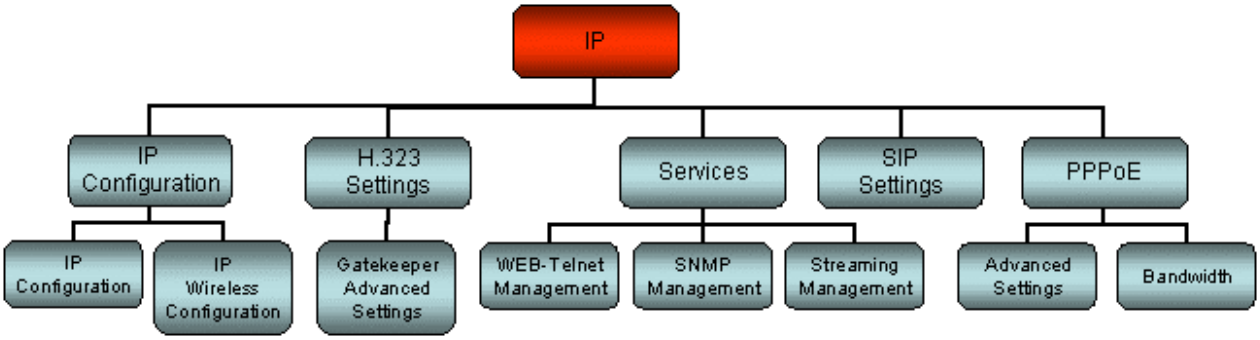



Installation
Terminal Settings
Network Interfaces
Location
Load default values
Licences
Encryption
Password


Network Interfaces
ISDN
NIC
IP
Enable Network


ISDN
BRI (Base Accesses Configuration)
PRI (Primary Configuration)
Primary Advanced Settings


NIC
V.35/RS530/G.703/RS449 Configuration
Advanced Settings
RS366 Advanced Settings


IP
IP Configuration
H.323 Settings
Services
SIP Settings
PPPoE
IP Configuration
IP Wireless Configuration
Gatekeeper Advanced Settings
WEB-Telnet Management
SNMP Management
Streaming Management
Advanced Settings
Bandwidth

# How to make a call

Once the System is on, the main user interface will display the **Home Page**:

A call can be made in three different ways:

- From the Phonebook
- Audio/Video
- Audio Only

**! To make an IP call , the address of called IP terminal must be inserted following this syntax: xxx.xxx.xxx.xxx**

# How to make a call from Phonebook

To enable the quick selection of a number to call, a phonebook is available to store data about frequently called terminals. To call one of these numbers, users need only select the entry in a list.
From the Home Page, using the arrow keys on the remote control device, move the pointer over the “Phonebook” icon and press OK.
The following image will appear:

**Note**
**The remote control has a dedicated key to directly open the phone book. See the “Remote Control” section.**

To make a call:

1. Use “Search” field for an alpha-numeric search
2. Select the name, press OK to confirm
3. Move down to the chosen name and press OK to confirm.
4. Move to the CALL icon and press OK to make the call. The same function can be achieved by pressing the CALL remote control key.
5. In order to end the call, use the DISCONNECT remote control key. The system will ask you to confirm disconnection.

# Audio-video calls

From the Home Page, select the VIDEO icon. The same function can be achieved by pressing the CALL key on the remote control.
You will enter the following page:

To complete the video call, follow these steps:

1. Select the call type from the dropdown menu (ISDN, IP, SIP, NIC, MCU, MCU ISDN, MCU IP).
2. ISDN only: check or uncheck the “56K” box for multiple rates of 56Kbps or 64Kbps.
3. Select the call rate from the drop-down menu .

! **To select an option from a drop-down menu, it is necessary to go to the menu itself, press OK, select the desired option by means of the remote control arrows and press OK.**

4. Enter the number or user alias (the H.323 Name from the “H.323 Settings” menu) you want to call using either the alphanumeric keys on the remote control or the virtual keypad.

! **1. A virtual keypad can be activated for situations where you need to enter text (e.g. names for the phonebook or aliases for calls).**
**2. To activate it, set the remote control cursor in the box where you want to enter text and press OK.**
**3. Select the desired letter by moving the cursor over it, and pressing OK.**
**4. To close the virtual keypad, select the ESC key and press OK**

5. Move to the CALL icon and press OK to make the call. The same function can be achieved by pressing the “CALL “ key on the remote control.
6. To end the call, use the DISCONNECT remote control key; if configured, the system will ask you to confirm disconnection.

# To Reselect an Incoming or Outgoing Call

Incoming calls are indicated with a red arrow while outgoing ones are indicated with a green arrow; a cyclic buffer of 60 numbers is available to store calls.
To reselect a called number press the CALL remote control key twice. A list will appear, and numbers can be selected and modified.

# TCS-4 Mode Video Call

The TCS-4 mode is an H.320 call (ISDN) to a gateway which is able to transcode H.320 (ISDN)/H.323 (IP). The format for number entry is:

“ISDN number of gateway” followed by “#” followed by “H.323 number (E.164) of the terminal to be called ”.

# Audio call

If you would like to make an audio-only call (using the System like a normal telephone), select the AUDIO icon from the Home Page.
To complete the audio call, follow these steps:

1. Select the type of call (ISDN, IP-H323, IP-SIP, NIC) from the drop-down menu.
2. Enter the number or the alias (IP) you want to call using the keys on the remote control or the virtual keypad.
3. Move to the CALL icon and press OK to make the call, or press the CALL remote control key.

To end communication, use the DISCONNECT remote control key: if enabled, the system will ask you to confirm disconnection.

# Secure Connections

The System can manage secure videoconference sessions via encrypted connections, in both point-to-point and multipoint sessions. To do this, the encryption function must be enabled: for more information, refer to the “Encryption” section of this manual.
Once encryption is properly configured, you can make a secure call by following the same procedure described for a standard call.

Useful information:
The encryption status can be checked on the status bar. If the encryption is enabled and configured, an icon showing a padlock is displayed on the status bar.

If the padlock is yellow and open ( ), encryption has been enabled but the function is not active.

If the padlock is green and closed, encryption is active ( ).

If the padlock is red and closed, encryption is activated only in transmission ( )

# How to receive a call

If you are in the Home Page and receive a call, a notification will be displayed in a window showing the caller’s number. If the automatic answer function (described in a later section) is not enabled, you will be asked whether or not to accept the call. If you are in a different page, you will be asked to accept or reject the call whether or not the automatic answer function is enabled.

# Dual Video Mode

## Dual Video Connection

You can create a Dual Video connection to send two video streams originating from different sources .

**! This is feasible on the condition that the remote terminal supports Dual Video. Dual Video transmissions can be initiated by either the Audio-Video calling or called terminal. If the receiving terminal is set up with XGA output, and one of the received streams is an XGA stream, this one will be automatically displayed into XGA output. However, the user is able to switch the automatic disposition by pressing the "C" key on the remote control.**

To create a Dual Video connection:

1) Set up a normal audio-video connection with the desired terminal
2) Press the "Dual" key on the remot control
3) Select the desired second video input source from the drop-down menu
4) Move to the YES icon and press OK

Once Dual Video is activated, if the receiving terminal is set up with two monitors, the user will be able to see the two video streams simultaneously. If there is only one monitor, the user can switch between the video streams by pressing the "SELF" key on the remote control.

## Dual Video Disconnection

To disconnect Dual Video only:

1) Press the "Dual" key on the remote control.
2) Move to the icon "Yes" and press OK.

**Note**
**To disconnect the whole Videoconference press the "Disconnect" key on the remote control.**

# Using the Phonebook

System allows use of either a **local** phonebook or a phone book on a **remote server (LDAP H.350 protocol)**.

You can select desired phonebook by means of drop-down menu:

| | |
|---|---|
| **Local** | for local phonebook |
| **Remoto server identifier** | for remote server phonebook |

## Entering Names in the Phonebook

From the Home Page, go to the PHONEBOOK icon and press OK, or press the “PHONEBOOK” remote control key.
Move the arrow keys to the ENTER icon and press OK.
The following page will be displayed:

Enter data in the phonebook by using the remote control alphanumeric keys or the virtual keypad to fill out the available fields.

- Choose the call configuration to record the connection details for this user (Interface used (ISDN, IP, SIP) and transfer rate)
- Enter NAME and COMPANY
- Enter the prefix and number
- Using the arrows move to the SAVE icon to save the new data or to CANCEL to exit and press OK

**Note**
**If you want to store an audio call only entry, you must check the Speech box.**

## Modifying and Erasing Phonebook Entries

To modify a phonebook entry:

1) Select the desired entry and press OK
2) Move to the MODIFY icon and press OK again
3) Enter modifications and save them

To erase an entry in the phonebook:

1) Select the desired entry and press OK.
2) Move to the CANCEL icon and press OK (the system will ask you to confirm deletion).

## Connecting to a global Remote Phonebook

**Phone book on a remote server (LDAP H.350 protocol).**

To connect to the remote server, move to the drop down menu and select the desired server IP address. The phonebook will now operate as described above.

**Note**
**To correctly configure remote server connection parameters, please contact your network administrator.**

To connect to the remote server, from “Phonebook” page move to the drop down menu and select the desired server IP address.
To activate the connection select the “Connect” icon and press OK.
The phonebook will now operate as described above.

# Video Input Management

It is possible to manage different video inputs by selecting them using the remote control keys “Camera”. The function keys “Red”-“Yellow”-“Camera”, can be configured to be associated with any available video input.
Possible choices include:

- Room camera
- XGA Video input
- A camera connected to a supplementary video input
- VCR video

**Note**
**The desired video source must be connected to the System inputs on the back of the equipment beforehand. For a correct setup of the function keys, see the chapter “Audio-Video-Data”, section “Camera”.**

During a connection it is also possible to control not only the local video camera’s zoom and panning functions but also those of the remote camera (if enabled). Use the remote control key “Far/Near” to select remote or local camera.

**Field of View and Zoom**
From the Home Page, using the remote control, go to the “video window” and press OK.
Adjust the video camera’s field of view with the arrow keys and press OK on the remote control.
An alternate method:
From the Home Page, go to the “Magnifier” icon on the status bar and press OK. You will see a full screen display with the camera under your control.
To release camera control, press OK.

# Video Privacy

**Once in connection.**
To activate the Video Privacy function, press the VIDEO PRIVACY key on the remote control. Local video will no longer be transmitted.
The icon will appear in the video window indicating that the remote terminal is no longer receiving video from local terminal.

**Not in connection**
Activates/Deactivates:

**Video privacy** as above.

**Not do disturb** System does not answer to incoming calls (busy for the remote)

# Controlling audio

The “VOLUME ( + and - )” keys allow you to adjust the level of received audio.
By pressing MUTE key you can activate the mute function, that is local audio will no longer be transmitted. On both the local and remote displays, the icon will appear, indicating that the mute function is active.

# Audio Autotracking

By pressing the AUTO key on the remote control the Auto Tracking function is activated, and the system automatically focuses on and tracks the talking person.

Activation of this function is indicated via the symbol on the status bar.

The system used for tracking is based upon four omni-directional microphones, through which it is possible to determine the origin of the voice and the distance of the talking person so optimizing camera orientation and zoom. Furthermore, voices can be distinguished from non-vocal sounds (doors, footsteps, moving chairs, etc.), thereby avoiding any confusion resulting from such sounds.

If a speaker moves, the camera follows the person continuously, optimizing the zoom. Very small movements are not taken into account.

The system is also able to recognise two persons alternately speaking—an intermediate position will be found and the camera will zoom to frame both speakers.

The use of the Autotracking function is not recommended for crowded conferences where a lot of background noise is present.

# Video camera presets

The Preset function allows the user to save camera positions (up to a maximum of 122 positions) in order to enable quick selection of a certain camera frame.

To save a preset:

1) Set the desired camera position and adjust the video zoom.
2) Press the MEMO key on the remote control and choose a memory location (maximum two characters)

**Note**
**Digits and characters that may be used are: 0,1,2,3,4,5,6,7,8,9,*,#.**
**The character * corresponds to 10; the character # corresponds to 11.**
**Examples:**
**Location 110 = press keys ** ➔ $10 \times 10^1 + 10 = 110$**
**Location 120 = press keys #* ➔ $11 \times 10^1 + 10 = 120$**

To recall a memory location:

1. Press the “SEL” remote control key
2. Using the remote control key, enter the memory location number corresponding to the desired preset.

**Note**
**The preset includes both the selected camera and its position, so recalling a preset can change the current video camera. Besides, from remote, the protocol of control of the camera allows to recall only the first 16 memorized preset.**

# System Configuration - Settings

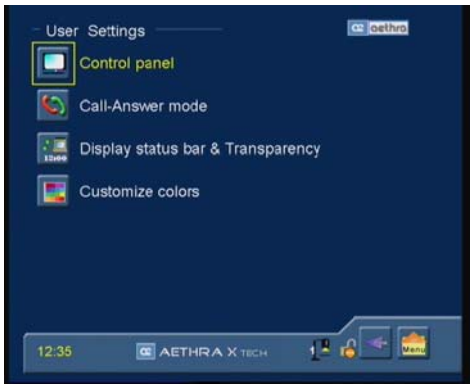
This section describes the procedures to properly configure the System.
Note that some configuration parameters can be modified only when no connection is active.

## User settings

From the “Home page” select:

1. SETTINGS
2. USER SETTINGS

The following page will be displayed:




From here you can access the following submenus:

- Control Panel.
- Call-Answer mode.
- Display Status Bar & Transparency.
- Customize colors.

## Control panel

In these pages you can configure some system parameters.

**Display**

- **Local Information**:
  If activated, shows information such as terminal name, ISDN number, and IP address on the monitor in graphical form
- **Warning messages**:
  If activated, allows visualization of "Bonding Recovery" messages
- **Show logo when in a call:**
  Enables/disables logo display during a call. Logo is customizable, default is Aethra S.p.A.
- **Disable still picture:**
  Disable transmission/receiving of **"still images".**
- **TFTP server:**
  Disable or enable and configure **TFTP server** (to obtain server IP address, please contact your network administrator). If enabled, still images can be sent and stored in a TFTP (Trivial File Transfer Protocol) server. These still images will be available for future use.

**Screensaver**

- **Automatic screensaver**:
  to enable/disable the automatic screensaver function, and to set its timeout
- **XGA on screensaver:**
  Enable/disable XGA loop function: "XGA IN" signal sent to "XGA OUT."
  Two possible cases:
  1. Active "XGA IN" signal: monitor shows XGA signal.
  2. Inactive "XGA IN" signal: no signals on monitor ("Stand By" mode).

**Remote control**

- **Numeric only remote control:**
  Enable\Disable **alphabetical digits only** on the remote control
- **ID code:**
  In order to control more systems with only one remote control, you can assign to each system a numeric code (01 to 99), and then consequently set the remote control.
  - To configure the system:
    a. The system code appears in the page.
    b. Is possible modify or save the new code.
  - To configure the remote control:
    1. Press the "RED" and "GREEN" keys at the same time.
    2. Wait for "Stand by" key stopping blinking.
    3. Insert the numeric code (01 to 99).

## Call-Answer-Mode

**General**

This menu contains the following configuration settings:

- **Mute:**
  selected, at the start-up and after each disconnection system will not transmit audio, an icon will be displayed in the local and remote terminals.
- **Do Not Disturb:**
  selected, at the start-up and after each disconnection system will not accept incoming calls, an icon will be displayed in the local terminal.
- **Video Privacy:**
  **Once in connection.**
  To activate the Video Privacy function, press the "VIDEO PRIVACY" key on the remote control. Local video will no longer be transmitted.
  The icon will appear in the video window indicating that the remote terminal is no longer receiving video from local terminal.
  **Not in connection**
  Activates/Deactivates:
  **Video privacy** as above.
  **Do Not disturb** System does not answer to incoming calls (busy for the remote)
- **Confirm disconnection:**
  Enable/disable confirmation requests for call disconnection.
- **Enable Tones:**
  Enable/disable tones in phase of call.
- **Automatic answer:**
  Enable/disable the automatic answer function, after the selected number of rings.

**H.320**

This menu contains the following configuration settings:

- **Audio Number = Video Number:**
  In a non-aggregated ISDN call, the audio number may be different from the video number. If this checkbox is not selected, the System will request the video number and offer by default the same number as the one used by audio.
- **Additional Calls:**
  Select automatic or manual configuration of additional calls
- **Mode:**
  Allows you to set the call mode to 64K or 56K.
- **TCS4 Delimiter**
  definition of TCS4 calls delimiter: "**#**" or "*". TCS4 is a special routing method for direct video call when a Gateway is present on the network (ISDN network to IP network). To place a call using a TCS4 extension, do the following:

1. Obtain the following information: Gateway number, delimiter and TCS4 extension.
2. Dial the Gateway number, the delimiter and the TCS4 extension.
   Example: ISDN_Gateway_number# TCS4_extension.

**Broadcast**

This menu contains the following configuration settings:

- This option allows you to set a transmission as “broadcast” (without capabilities exchange).
  **Note:**
  **In order to make a Broadcast call, the two terminals must have the same Audio, Video, Rate and Data (LSD) configurations.**

## Display Status Bar and Transparency

- **STATUS BAR:**
  Allows you to personalise the System graphical interface, choosing whether you want the status bar to be present and, if so, what information should be displayed on it.
  **Information on the status bar:**
  Date and Time, selected camera, channel status, charges, data channel.
- **TRASPARENCY:**
  allows you to add transparency to graphical pages where the video window is not reduced in size.
  This transparency can be set to four different preset levels (high=75% transparency, medium=50%, low=25%, opaque=0%). Transparency can be used in different ways:
  a. Automatic: (default) Only the diagnostic pages of the “Connection state” uses transparency with a selectable initial level (default medium). The transparency level can be changed dynamically.
  b. Variable: All pages where no video is present use a selectable initial transparency level (default medium). The transparency level can be changed dynamically.
  c. Fixed: All pages where no video is present use a selectable initial transparency level (default medium). The transparency level cannot be changed dynamically.
  d. Off: Transparency is always deactivated.

  Dynamic change of transparency level is achieved by pressing the remote control key C. The transparency is always deactivated when a page is superimposed with a message page to improve legibility.

## Customize colors

- Allows personalization of the **graphical interface colours** of the System.

# Audio – Video – Data

From the Home Page select:

1. SETTINGS
2. AUDIO VIDEO DATA

The following page will be displayed:

You can access the following submenus:

- Audio
- Video Quality
- Cameras
- Monitor
- Data channel

## Audio

You can access the following submenus:

- Inputs
- Processing
- Outputs

and adjust the ringing and sound volume.

**Volume for ringing and sound**

For adjust the **ringing** and **sound volume**, follow these steps:

1. Select AUDIO or RINGING from the “Volume” pop-up.
2. Use the remote control arrow keys to move the Volume slider control.
3. Choose the desired value, using the remote control arrow keys.

**Inputs**

Allows for the adjustment of each audio input to the System.
Move to the desired input and press OK, a window will appear where you can:

- Set the gain value for the input
- Enable/disable the input audio stream
- Enable/disable the Echo Canceller

Recommended inputs for video or DVD:

We strongly recommend to use “VCR” inputs for signals directly coming from video-recorders or DVD, because the echo cancellation is disabled on these inputs.

Recommended inputs for external audio Mixers:

We strongly recommend to use the “Line” input for signals directly coming from an external audio mixer, because echo cancellation can be enabled on this input.

The icon **“load default values”** restore factory values of the audio inputs enabling all the audio inputs.

**Processing**

In this menu you can enable/disable the Echo Canceller functions:

- AGC.
- Noise Reduction.

**Outputs**

In this page you can configure audio flows sent to the System Audio outputs.
You can first select Audio outputs from drop down menu, and then select the audio flow you want to send to the desired output.
To restore factory values click on “Load default values” icon.

## Video Quality

From the Home Page select:

1. SETTINGS
2. AUDIO VIDEO DATA
3. VIDEO QUALITY.

This allows the configuration of the following parameters:

- **Video Quality-Speed:**
  To balance between sharpness and dynamic nature of video images.
- **"Aethra Error Strategy":**
  Set the number of allowed line errors before video is frozen:
  "**Min Fluency"**: stop video at the first occurred error,
  "**Max Fluency**": never stop video and allow errors through.
- **"Audio Delay Automatic":**
  You can also **synchronise audio with video**. The audio delay represents the value in milliseconds by which received audio is delayed.
  In order to have perfect synchronisation between audio and video, it is necessary to adjust these parameters according to the connection type.
  By selecting the check box (strongly recommended option), you allow this operation to be performed automatically by the system. Alternatively, you can make manual adjustments by moving the slider along the bar until you obtain the best synchronisation.

## Cameras

This menu allows you to:

### Settings

- Enable/disable the remote control of the local camera.
- Select, from dropdown menu, the video input.
- Set the values for contrast, brightness and colour in order to obtain a better video image.

A preview window allows the immediate control of changes.

### Customize

Each input could be enabled\disabled (that is, inserted in a selection list), associated to a Name, associated to a shortcut (RED, YELLOW, Camera keys on remote control) for a quick choice.
To choose a shortcut, select the related icon and press OK

### Driver

**Advanced (Administrator Password Required)**
Select driver for room camera and Video Input1, and enable the PTZ function for all video inputs. You can enable the Autotracking function (check "AutoT Audio").

## Monitor

In this page is possible to configure system video outputs.
You can access three menus:

- Settings
- PIP-PaP
- Plasma

**Settings**

In this page you can set following system parameters:

- Monitors Number
- Monitor Menu
- Video outputs

Dropdown Menu " **Monitors Number**" (default setting: Automatic).
Following table shows all available configurations:

| **Dropdown menu "Monitors Number"** | **Connected monitors** |
|---|---|
| Automatic | System automatically recognises connected monitors |
| XGA | One XGA Monitor |
| TV1 | One analogic monitor |
| TV1+TV2 | Two analogic monitor |
| TV1+XGA | One analogic monitor and one XGA monitor |
| TV1+ TV2+XGA | Two analogic monitor and one XGA monitor. |

Dropdown Menu " **Monitor Menu**" (default setting: Automatic).
In case the Multi Monitor configuration has been choosen, so to have more monitors connected to the system, is possible to choose where to see GUI – Graphical user interface.
Available configurations are:

| | |
|---|---|
| Automatic | GUI set by the system |
| TV1 | GUI always on TV1 |
| TV2 | GUI always on TV2 |
| XGA | GUI always on XGA |

**16:9 check box (**use only with 16:9 monitors).
If selected system adds vertical side banners in order to scale fullscreen video image from 4:3 to 16:9.

16:9 selection is possible for both TV1, TV2 and XGA video outputs.

**TV1:** connect a monitor or an analogic TV to TV1 video output (RCA connector, point 2 of cabling scheme). **16:9 check box (**use only with 16:9 monitors).

**TV2:** connect a monitor or an analogic TV to TV2 video output (RCA connector, point 2 of cabling scheme). **16:9 check box (**use only with 16:9 monitors).

**XGA**: connect a monitor with a XGA connector to XGA video output. Choose in dropdown menu used monitor (XGA out in cabling scheme). **16:9 check box (**use only with 16:9 monitors).

Available resolutions are:

| **XGA** resolutions |
|---|
| 1024x768 |
| 800x600 |
| 640x480 |

**PIP-PaP**

In this page is possible to select **"Multi Imagine"** system functionalities:

- **PIP: Picture in Picture**

  Allows to see two overlapped images in one monitor, that is remote image in full-screen format, an local image in a smaller overlapped window; by means of remote control "Self" key you can switch windows content.

  Is possible to choose:

  - PIP position (one of four monitor corners)
  - PIP movements (clockwise or counterclockwise) by means of remote control "PIP" key.
- **PaP**: **Picture and Picture**

  Allows to see in one monitor two windows side by side, with local and remote images; by means of remote control "Self" key you can switch windows content.
- **Multi Imagine Type**
  a. By selecting **AUTO** a mixed PIP and PaP function is enabled.
  By means of remote control "PIP" key you can switch between PIP and PaP.
  b. By selecting **PIP** PIP function is enabled.
  c. By selecting **PaP** PaP function is enabled.

**! Multi image modality must be enabled separately for TV1, TV2 and XGA monitor.**

- **Multi Imagine Mode**
  a. By selecting **AUTO** PIP and PaP functions are enabled only when needed, that is when number of video flows is greater than available monitors number, and automatically place video flows (with precedence to remote ones).
  b. By selecting **ON** PIP and PaP functions are enabled if at least two video flows are available (in case of unique video flow you have a full screen image, eg when system is not connected)
  c. By selecting **OFF** PIP and PaP functions are disabled.

**! Multi image modality must be enabled separately for TV1, TV2 and XGA monitor.**

- **Multi Imagine: remote control "Self" key and monitor info.**

  Remote control "Self" key allows to show video flows in different available monitors, choosing among different combinations.

  In the lower right corner of monitor containing GUI, an icon appears with four white monitors showing available configurations, active configuration being in red.

  The icon is hidden when default configuration is active.

**Plasma**

Select plasma, type of monitor and viewing modality.

**Note**

**Following instructions refer to "Pioneer" monitors.**

**! Please carefully check XGA, Y/C and RS232C/DEBUG (null modem cable) connections between plasma and System.**

- In the "Type" field, set the plasma model.
- In the "Number of monitors" field, select the number of connected plasma monitors.
- In the "Mode" field, select the default viewing mode from the pop-up menu.

**! First time "Plasma type" is selected (usually factory done), a particular operations sequence must be followed:**

1. **Do not connect the system and the monitor by means of serial cable.**
2. **Select plasma type.**
3. **Once completed all initializations, switch off the system, connect the system and the monitor by means of serial cable, switch on the system: now is ready.**

**Viewing modes**

Different viewing modes may change depending on used monitor characteristics .
Following viewing modes with corresponding short explanations refer to Pioneer systems.

1) **Automatic MultiScreen**
2) **Fixed MultiScreen**
3) **Automatic BigLittleScreen**

**1) Automatic MultiScreen**

Selecting this mode, the system shows two side-by-side equal-sized pictures: graphics relating to system management will appear on the right, whereas motion video will appear on the left.
Once connected, an XGA remote signal automatically changes the viewing mode to BigLittleScreen mode; once in this mode, surfing inside menus will let back again to the MultiScreen viewing mode.
To see a local XGA image select full-screen visualization, then you can switch to BigLittleScreen mode by pressing the "C" key on the remote control.
Exiting from the FullScreen mode, the system immediately comes back to the MultiScreen viewing mode.

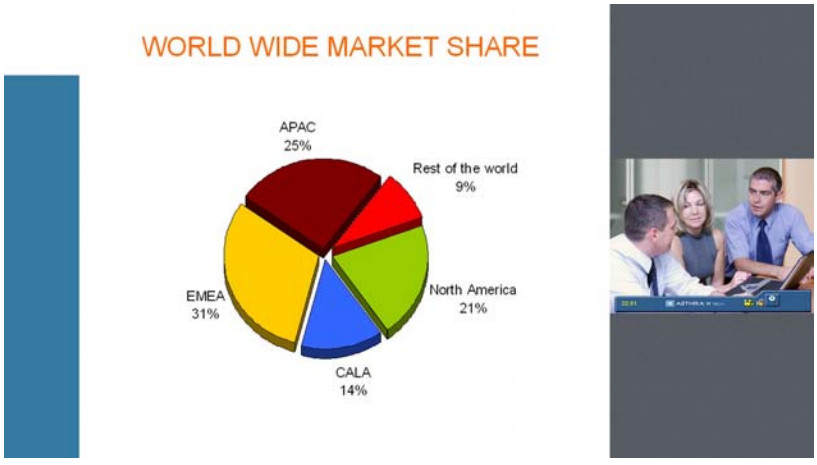
**a) Disconnected system**

**b) Connected system (with 50" Pioneer plasma, you'll obtain two 27" images, 4:3 )**

**c) Connected system that receives a remote XGA image (with 50" Pioneer plasma, you'll obtain two 4:3 images, a big one (42") with 1024 x 768 XGA resolution image and a small one (11")).**

**d) Connected system with remote XGA image, while local user looks at the menu**

**e) Connected system with remote XGA image, in DualVideo XGA mode.**
**The larger pane displays the XGA image, while the smaller one displays the remote vide stream.**



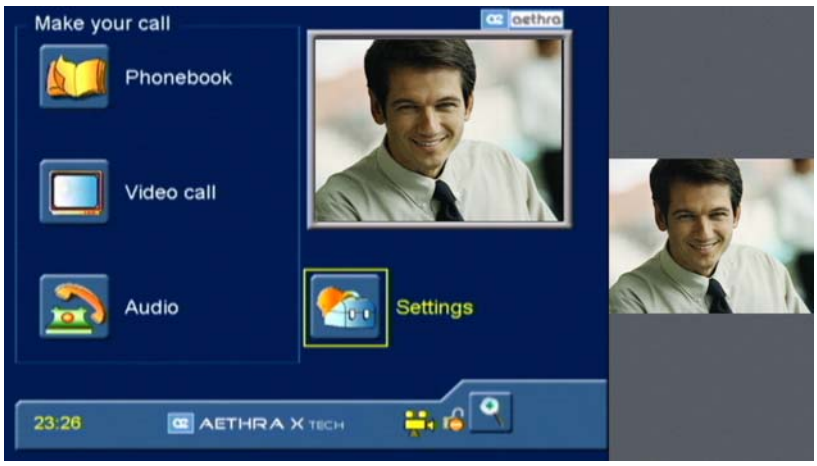
**2) Fixed MultiScreen**

Selecting this mode causes the system to display two side-by-side, equally-sized frames. Graphics relating to system management will appear on the right, while remote video (or XGA) appears on the left.

**3) Automatic BigLittleScreen**

If this mode is selected, the system will show two video outputs in different-sized frames.
The larger frame on the left will show the graphics relating to system management, while the video stream will appear in the smaller frame on the right.
During an active connection, the system automatically selects which video stream to place in the larger frame.
The initial viewing mode can be restored only via the menu.

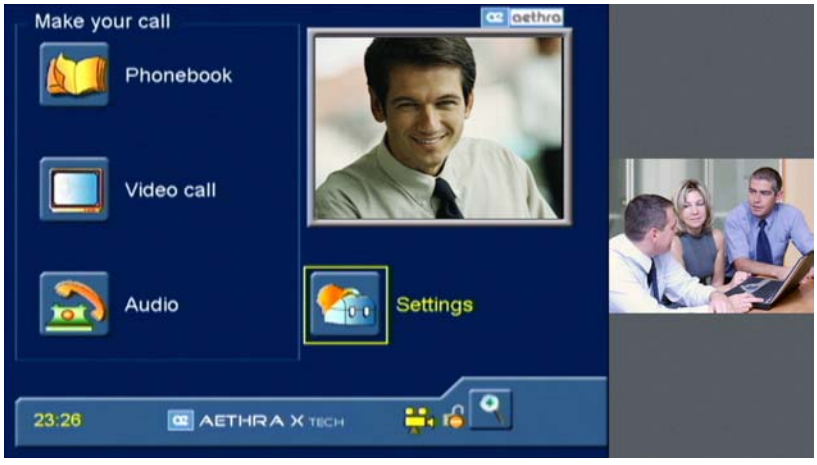
**a) Disconnected system.**



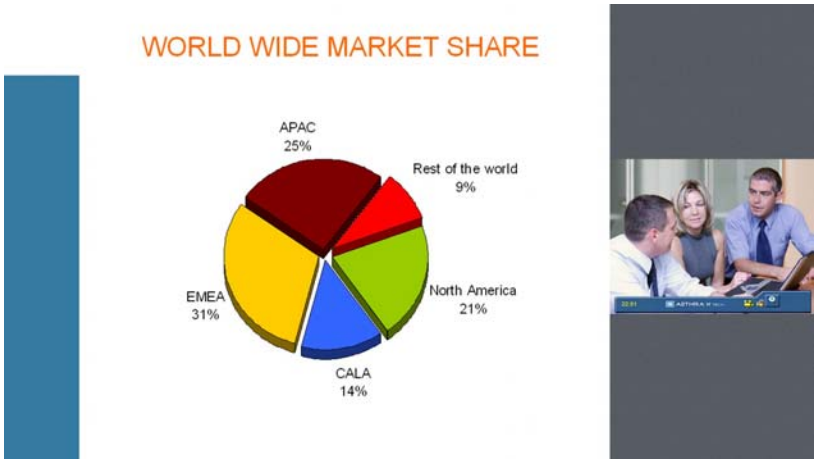
**b) Connected system.**

**c) Connected system that receives an XGA image.**

**d) Connected system while user browses the menu.**



**e) Connected system that receive an XGA image on Dual Video XGA mode.**




## Data Channels

From the Home Page select:

1. SETTINGS
2. AUDIO – VIDEO – DATA
3. DATA CHANNELS

In this menu you can:

- Enable or disable "Data" transmission.
- Select the transfer rate.
- Enable or disable "Modem function" (if activated allows AT commands usage).
- Choose the "data channel max rate" (only H.320).

| | |
|---|---|
| High | **Max data, no audio, no video.**<br>Data channel optimisation to the detriment of both audio and video |
| Medium | **Max data, audio, no video**.<br>**D**ata channel optimisation to the detriment of audio (video still active) |
| Norm | **Max data, audio, video**.<br>**D**ata channel optimisation, with both audio and video active. |
| Auto | **Data, audio, video.**<br>Data channel rate optimisation to RS232 rate and connection speed. |
| Select Rate | User can choose the data channel rate. |

- Choose "MLP" data transfer protocol

# Installation

From the Home Page select:

1. SETTINGS.
2. INSTALLATION.

You will be prompted for a password.
The password is required to avoid accidental modifications and changes to settings.

## Password

There are three different kinds of passwords:
Administrator password: Always active. Can be modified by pressing the “EDIT” icon.
User password: Must be activated. Can be modified by pressing the “EDIT” icon.
Phonebook password: Must be activated. Can be modified by pressing the “EDIT” icon.

**Note**
**passwords is “1234”.**

## Encryption

From the Home Page select:

1. SETTINGS
2. INSTALLATION
3. ENCRYPTION

The configuration menu will be displayed; here you can set the following parameters:
**Use Encryption:**
If encryption is activated, the System will use encryption in either H.323 or H.320.
It is also possible to enable/disable the encryption from the toolbar: select the padlock icon, and press OK.
**For IP calls**

- If encryption has been activated, the data protection procedure is active from the beginning of a videoconference.

**Encryption is active from start (ISDN):**

- If this option is selected, the System executes the encryption procedure from the beginning of the ISDN connection.
- If this option is not selected, the ISDN connection starts in unencrypted mode. Encryption can be activated later at any time during the connection. To do this, select the yellow padlock on the status bar and press OK.

**Unprotected calls**
From this drop-down menu you can choose the policy the System will apply if the remote terminal is not able to support protected calls.

- **Disconnect** – The System will not allow connection with a remote terminal that does not support encryption, and therefore automatically disconnects.
- **Ask Confirmation** – During the session negotiation phase, the System will ask you to confirm that you want to establish an unprotected call.
- **Inform** – The System will inform you that you are about to establish an unprotected connection by displaying a visual warning message.
- **State** – The System will notify you that you are about to establish an unprotected call, and once the connection is established an open padlock symbol will be displayed on the status bar.

**Length of AES Key (ISDN only)**

From this drop-down menu you can choose (for ISDN connections only) three AES key lengths:

- 128 bits
- 192 bits
- 256 bits
- <Auto> (allows optimal choice according to the characteristics of the terminals negotiating the videoconference session.)

**Note: For an IP connection, the key length is always 128 bits.**

**Length of Prime DH Number Key (ISDN Only)**

The encryption protocol requires the simultaneous exchange of a prime number and an AES private key between terminals. For H.320 calls you can choose between two prime number lengths:

- High Security (length 1024 bits)
- Very High Security (length 1536 bits)

**Note**

**For IP calls, the System always uses the High Security option with a 1024-bit length.**
**Most common video communication terminals normally use the High Security prime number length and the 128-bit AES private key.**

## Licenses

From the Home Page select:

1. SETTINGS
2. INSTALLATION
3. LICENSES

This page is dedicated to supplementary functions not offered by default. In order to obtain information on the activation of these functions, please contact your system supplier.

To insert a licence key by means of the remote control:

1. Enter the licence key.
2. Press the “Enable Licence” icon.

**Possible options with licence keys, on different systems:**

a. **ISDN connections up to 768Kbps**
b. **PRI connections**
c. **NIC (X.21, V.35, RS.449, RS.530, RS.366) connections**
d. **G.703 connections**
e. **MCU.**
f. **Dual Video**

## Terminal Settings

From the Home Page select:

1. SETTINGS
2. INSTALLATION
3. TERMINAL SETTINGS

In this section you can configure terminal settings for various network interfaces. For each interface it is possible to set, if present:

- The maximum data **"Rate"** for a call (excluding NIC).
- **Audio coding**
  Enable/disable G.722.1 and MP4 AAC-LD coding
- **Video coding**
  Enable/disable H.264 coding
- **Channels**
  Determine if channels are to be bonded or not (ISDN only)

**Note**
**With audio and video encoder/decoder settings set to <Auto> the system choose the encoder/decoder based on the connection bit rate.**

**DualVideo H.239** and **DuoVideo™** can also be enabled/disabled.

# Network interface

From the Home Page select:

1. SETTINGS
2. INSTALLATION
3. NETWORK INTERFACE

In this section you can choose and configure the system's network interfaces. For each interface, it is possible to set some parameters.

**ISDN network interface**

In this section you can:

- Select the "Euro" or "National" protocols
- Select Access type:
  - BRI Access
  - PRI Access

  **Note**

  **For information on the configuration of primary access, please refer to the relevant paragraph in this manual..**
- Activate/deactivate:
  - CLIR (Calling Line Identity Restriction): if enabled, system will not transmit its number when establishing a call.
  - COLR (Connected Line Identity Restriction): if enabled, system will not transmit its number while receiving a call.
- Activate or deactivate the "**Downspeed**" function that is automatically called when one or more lines are dropped during a call.
- Activate the "**FALLBACK**" function in order to allow a phone call when the remote system is a basic telephone.
- Enable/disable the "**Bonding Recovery**" function in order to cope with a situation in which network errors (such as network SLIP errors) occur during a bonding connection.
  In a call, following messages could appear:
  - ✓ Corrupted video received. Please wait...
  - ✓ Video received Ok.
  - ✓ Corrupted data received. Please wait...
  - ✓ Data received Ok.
  - ✓ Network error recovery: re-establishing call...
  - ✓ Call established. Please wait...
  - ✓ Down-speed, connection rate
- Activate or deactivate the 5ESS protocol (for National ISDN only).
- Select the mode (64K or 56K).
- Activate or deactivate the 1TR6 function (allows you to change the protocol level 3 from ETS1 to 1TR6, for Euro ISDN only).
- Activate or deactivate the QSIG protocol (ISDN signalling protocol).
- Configuring accesses.

### *Access Configuration (ISDN BRI Euro)*

Move to the Configure Access icon and press OK.
From this menu, you can:

- Choose to **enable one or more accesses**.
- Specify the **number to be associated** with the access.
- Specify the **subaddress**, if present.
- Choose to enable the "**MULTINUMBER**" function by checking the appropriate box.
- Select **TEI** (either Automatic or Fixed)
  The TEI is an identifying number that allows the ISDN exchange to distinguish between different terminals connected to a common access point. If TEI Fixed is selected, then you must manually enter the TEI number. Conversely, by not selecting it, the parameter will be set as TEI Automatic. In this case, the TEI number will be automatically assigned by the exchange and no further operations in this menu are necessary.
  **Note**
  **Normally, the TEI is left as AUTO because an incorrect setting could create connection problems**

### *Access configuration (ISDN BRI National)*

Move to the Configure Access icon and press OK.
From this menu you can:

- Choose to **enable one or more accesses**.
- Specify the **number to be associated** with the access.
- Specify the **SPID**, if present.
- Select **TEI**, either Automatic or Fixed.
- Enable any eventual **SPID2** and enter the appropriate numbers.

### *Access configuration (ISDN PRI Euro)*

Select PRI in the "Access" box.
Move to the desired access configuration icon and press OK.
At this stage you can:

- Choose to enable Primary Rate Interface.
- Specify the number to be associated with the Primary Rate Interface.
- Specify the subaddress, if present.
- Choose to enable the "MULTINUMBER" function by checking the appropriate box.

Move to the "Advanced" icon, and press OK.
In this page you can:

- Choose to enable/disable CRC4 depending on the connected network.
- Select B channel (Time slot)
  Request by the terminal or by the network
  Define usable B channels (as for network provider instructions).
  Available channels search in increasing/decreasing order on defined B channels.

**Note**
**It is appropriate here to stress that unless you have special needs, it is advisable to leave the "network" option selected, since incorrect configuration could create connection problems. For special configurations, please contact your service provider.**

***Access configuration (ISDN PRI National)***

Select **PRI** in the "Access" box.
Move to the desired access configuration icon and press OK.
At this stage you can:

- Choose to **enable Primary Rate Interface**.
- Specify the **number to be associated** with the Primary Rate Interface.
- Specify the **SPID**, if present.

Move to the "Advanced" icon and press OK.
In this menu you can:

- Select **B channel** (Time slot)
  - Request by the terminal or by the network
  - Define usable B channels (per service provider instructions).
  - Available channels search in increasing/decreasing order on defined B channels.

- Select **cable length**
  From the drop-down menu, you can also select "Cable Length": the length of the cable connecting the System to the Primary Rate access socket used.

**Note**
**It is appropriate here to stress that unless you have special needs, it is advisable to leave the "network" option selected, since incorrect configuration could create connection problems. For special configurations, contact your service provider.**

**NIC network interface**

In this page you can select the NIC interface in use:

- G.703
- NIC (V.35/RS449/RS530/X21)

To set G.703 choose YES as default - G.703.
To set NIC choose No as default - G.703.

Once the interface has been chosen, the configuration menu can be accessed by selecting the NIC icon.

***G.703 interface configuration(option whit license)***

In order to use G.703, it is necessary to have a licence (see section on licensing for more information).
In this menu you can:

- Choose either the E1 or T1 protocol
  If the system has already been configured to support a PRI interface (either Euro or National), the E1/T1 option is not available and the system is automatically set to the appropriate mode:
  - Euro Primary Access → G.703 E1;
  - National Primary Access → G.703 T1.
- Choose the Rate;
- Set the Network Speed(64K or 56K);
- Enable/Disable automatic calls
  To make an automatic call:
  1. Enter Audio-Video call page
  2. Select NIC in "Type of call" drop-down menu
  3. Wait for few seconds, and the System will automatically start the call
- Enable/Disable CRC4 (E1 only);
- Enable/Disable the "Enabled Alarms" option;
- Configure the System to be either "Master" or "Slave" in calls.
- "G.703 advanced" settings (T1 only).
  Choosing the modality T1 is possible to select the icon "Advanced" for select the appropriate cable length.

**Note:**
**If the system is configured with PRI lines, Euro or National, the System automatically selects the net in the following way:**
**Primary Rate Euro Access → G.703 E1;**
**Primary Rate National Access → G.703 T1.**

**Note:**
**If "Automatic call" option is enabled, System will start the call as soon as it notices the presence of a line.**

### *NIC (V.35/RS449/RS530/X21) Interface Configuration (Licence Required—see "Licences" for more information)*

This section allows you to customize the NIC interface. The network type (X.21, V.35, RS449, RS530) is automatically recognised by the system.
Available options:

- Select the maximum rate from the drop-down menu
- Select Automatic Call to make the call if network alarms are not present
- Select "Use RS366" to allow the use of the RS366 interface (leased interfaces are not switched, but they will be switched when combined with RS366)
- Select TERMINATION to insert terminations on the interface signals
- Select CLOCK RX=TX for identical bit rates in transmission and reception

Select ADVANCED in order to display the following advanced settings:
ON indicates that the signal is managed (OFF indicates that the signal is not managed)
For all signals: ON indicates normal management of the signal, while OFF sets the value of the signal to "active."
Selecting ON/OFF/ON in the DTR box activates the "Resync pulse".
Selecting RING in the CD box indicates the signal is used for announcing an incoming call.

Select RS366 Advanced in the NIC menu to configure some signals:
ON indicates that the signal is managed.
OFF indicates that the signal is not managed.

**Note**
**To use the NIC interface licence is needed, as well as a cable corresponding to the desired interface.**

**IP configuration**

From the Home Page select:

1. SETTINGS
2. INSTALLATION
3. NETWORK INTERFACES
4. IP

The following page will be displayed:

The five available options are:

- IP Configuration.
- H.323 settings
- SIP settings
- Services
- PPPoE

### *IP Configuration*

This menu is for Integrated LAN and Wireless LAN configurations; select "IP Configuration" and select the type of the desired LAN Network:

- Select "IP Configuration" (Integrated LAN)
- Select "IP Wireless Configuration" (Wireless LAN)
- Select the Priority between fixed and wireless network, for outgoing calls.

**IP Configuration: Integrated LAN**

In this menu, you can enable/disable automatic assignment of an IP address:

- IP address;
- Subnet mask;
- Gateway IP address;
- DNS server IP address.

Is possible to configure Ethernet port either for what concerns connection "LAN speed" (10Mbps / 100Mbps), or "Duplex Mode" (Half / Full), in order to optimally operate with HUB/Switch that do not support automatic configuration.
Default configuration is <Auto> for both settings.

**! For configuration information, please contact your network administrator.**

By selecting ADVANCED, you can enter a page to set:

- The range of **dynamic TCP and UDP ports** (*).
- The **quality of service** policy to be applied:
  - **IP Precedence/TOS**
  - **Differentiated service**. You can choose audio and video values in a 0 to 63 range
- "**Use NAT**":
  1. "NAT Type"should be set to "Others"
  2. "Public IP address" must be the public IP address of the NAT.

By selecting the "BANDWIDTH" icon is possible to enable and set maximum bandwidth usage limits (in Kbps). These limits can be different in transmission and reception, a very useful function on ADSL networks.

**Firewalls**

All Aethra videoconference systems have been tested with:
Cisco PIX Firewall (Firewall H.323 compatible - release 6.1 or later).
Cisco MCM Proxy (NAT H.323 compatible - IOS release 12.2 or later).

**Note (*)**

**when a firewall is crossed, the firewall administrator must open a range of dynamic TCP and UDP ports, as configured in the system, to allow bidirectional IP traffic. Moreover, once the ports have been opened, the protocols (TCP 1720 (Q.931), TCP 1503 (T.120), UDP 1719, and 1718 (RAS)) involved in a call must be taken into account.**

**IP configuration "Wireless" (Optional)**

In this menu, you can enable automatic IP configuration, or enter the following data manually:

- IP address;
- Subnet mask;
- Gateway IP address;
- DNS server IP address corresponding to a wireless network.

**! For configuration information, please contact your network administrator.**

By selecting ADVANCED, you can enter a page to set:
SSID: wireless network identification.
MODE:
Ad-Hoc: all terminals in the network communicate with each other, and not with a dedicated access point.
Managed: all terminals present in the network communicate with an access point.
ENCRIPTION MODE: enable/disable encryption and allow user to set the desired key length.
ACTIVE KEY: select one of four alternative keys.

By selecting the "BANDWIDTH" icon it is possible to enable and set maximum bandwidth usage limits (in Kbps). These limits can be different for transmission and reception, a very useful feature on ADSL networks.

**Note**
**This manual contains a section on "Recommended Wireless Network Interface Cards".**

***H323 Settings***

This section contains the configuration options necessary to use the system with the H.323 protocol:

- **Name H.323**: H.323 ID (the name used by the terminal for registration with the gatekeeper)
- **Number H.323:** E.164 identifying number used by the terminal for registration with the gatekeeper
- **Gatekeeper** use and address
  Gatekeeper automatic IP address
  Gatekeeper static IP address
  **Advanced**: Automatic registration to Gatekeeper: allows the user to change registration timings
- **Using NetMeeting:** If a T.120 connection is available, a data conference using NetMeeting can be started by entering the IP address of the application host server. To enable this function:
  1. Check the box next to "Use NetMeeting"
  2. Enter a server IP address where the application is hosted.

**! For configuration information, please contact your network administrator.**

***SIP Settings***

This section contains the configuration options for use of the system with the SIP protocol:

- Terminal **name**
- Terminal **Password**
- **SIP Registrar Server**

  "Use registrar": run terminal registration at a SIP Registrar Server
  "Name": Enter SIP Registrar Server name
  (Ex: SipRegistrarServer.Domain.xxx)
  "IP Address"
  "Duration": Registration duration (in seconds).
  "Port": Port for server signalling. (Default is 5060).

- **Sip Proxy Server**

  "Use Proxy": use a Sip Proxy Server
  "Name": Enter Sip Proxy Server name (ex: SipProxyServer.Domain.xxx)
  "Domain": Enter Sip Proxy Server domain
  "IP Address"
  "Port": Port for server signalling (Default is 5060).

**! For configuration information, please contact your network administrator.**

***Services***

The System allows for the configuration of various parameters associated with web management, SNMP management and streaming management.

## Web-Telnet management

In this section you can:

Enable/disable System access from the Web using Telnet by means of IP, ISDN or NIC connections.

- Enable/disable phonebook management from the Web.
- Enable/disable phonebook management from the Web via ISDN(default: enabled)
- Limit access to a single IP address or any IP address in a specified network.
- Change the Web/Telnet access password ( default: Username Aethra, Password 1234).

## SNMP Management

In this section you can:

Enable/disable SNMP use.

- Enter administrator name
- Enter Location
- Limit editing of settings to one IP address, or any IP address on a specified network.
- Limit reading of settings to one IP address, or any IP address on a specified network.

**! For configuration information, please contact your network administrator.**

## Streaming Management

In this menu the System can be configured to use streaming. This technology allows viewing of and listening to live or recorded events by a large number of users connected to the IP network without the need for a large file to be downloaded. It is based on the continuous transmission of data compressed by particular programs (systems) from a server, then decoded at the client side by an appropriate player that works even during data buffering, thereby avoiding long delays.
The System is able to transmit to networks in either unicast or multicast. If the streaming is unicast, only one client at a time is allowed to connect to the stream. If it is multicast, there is no theoretical limit to the number of connected clients.
In case of pre-recorded event streaming, replay a recording of the event using a VCR or DVD player connected to the System video input available for this purpose, select this input and begin the streaming.
Note that the system does not act as a distribution server, rather as a simple system. It does not provide connections using RTSP (Real Time Streaming Protocol), nor can it provide unicast streaming to multiple clients, or offer other services typical of distribution servers.
Streaming is supported by RTP (Real-time Transport Protocol). Video packets are encoded in H.261, while audio packets are encoded in G.711.

Menu options are "Streaming Management," "Enable Streaming," and Activation.

**"Streaming Management"**

Allows modifications of the Announcements, Video, Rate, Address, Port, and TTL/Hops parameters by external applications (from the Web, for example). If this option is not selected and a unicast IP address is present in the "Address", then only the system identified by that IP address will be able to view the stream.

- Enable all addresses: this option allows modifications to the previously mentioned parameters by almost any external system. If this option is not selected, then you can establish which system or subnet is enabled to perform this operation. If the mask is 255.255.255.255, then the system will be selected, if the mask is 255.255.255.0 then the subnet will be selected.
- Password: allows password protection of streaming management

**"Enable Streaming"**

Allows stream viewing according to the limitations imposed by the parameters "Streaming Management" and "Enable all addresses." If this option is not selected, streaming will never be activated.

**Announcements**

This drop-down menu allows you to choose how the System will notify the user that an external system has requested streaming activation.

Options:

- **Activation**: The System will display a dialogue box containing a warning and a video camera icon that will stay in place as a reminder for as long as streaming is active.
- **Status**: Only the video camera icon will be displayed during streaming.
- **Confirmation request**: A dialogue box will appear to request confirmation of streaming activation. This option offers an extra level of protection.

**Video**
This drop-down menu allows you to choose which video signal is transmitted when streaming is active.
If the "**Automatic**" option is selected, the streaming content will be determined by the status of the terminal: if the terminal is connected (in either a point-to-point or multipoint session), video coming from the remote site will be streamed. If the terminal is disconnected, local video will be streamed.
If the "**Local**" option is selected, the system will always stream local video.

**Rate**
This drop-down menu allows you to choose the bandwidth occupied by audio and video streaming. Note that if a rate of 64K has been selected, the video will not be transmitted, because all the bandwidth will be occupied by audio.

**Address**
This parameter contains the IP address for the stream. If this field contains a unicast IP address, it will be automatically overwritten by the IP address of the system that has requested to view the stream from an HTML page supplied by an internal web server. By pressing the "Active" key on the configuration page, you can activate streaming: the system will start the transmission of audio and video packets to the selected IP address.
If the IP address is multicast, streaming will be sent to a multicast group identified directly by the IP address, enabling viewing by a large number of users (theoretically unlimited).

**Port**
This parameter contains the number of the UDP port where audio packets are to be sent. Since the streaming content is RTP, data are sent to four different ports: one port for audio, one port for video and two ports for the RTP information corresponding to both streams. Therefore, starting with an audio port number, it is implied that the audio data will be sent to this port number, video data will be sent to the audio port number plus two, and the odd port numbers before and after the video port will be used for RTP data. For example, if the audio port number is 554, the port number for video will be 556, and the port numbers for RTP data on both streams will be 555 and 557.

**TTL/Hops**
This parameter contains the value for the Time to Live associated with multicast packets.

**Activate**
Streaming activation/deactivation request.

**Viewing with a plug-in**
The integrated Web Server provides the simplest method.
Connect to the System via the Web and from the server homepage click on the image that looks like video—this will give you access to the page produced by streaming. This page has been designed to use Quick Time, wich must have been previously installed to view the video stream. Accessing the page automatically activates audio-video streaming. The user can choose the video signal to be displayed (Local or Automatic), which must be compatible with configured settings. The System provides a direct link to streaming page, using the address: http://aaa.bbb.ccc.ddd/ streamviewen.asp, where aaa.bbb.ccc.ddd is the IP address of the System.

**Viewing using an external player**
Another way of viewing streaming is to use an external player. The only tested players are QuickTime 6.0 and VIC (supplied by the University of California Berkeley), but this does not exclude the possibility of compatibility with other players that accept RTP streams.
The first operation necessary is to activate streaming. This can be achieved by simply entering the IP address of the system in the "Address" field on the streaming configuration page of the system where the player is located, or the multicast address of the group to whom the stream is being sent. Pressing the "Activate" key will enable the machine to begin the transmission of audio-video packets to the player.
If you use QuickTime as a player, you can simply select "File" from the menu, then "Open URL in new player" and enter http://aaa.bbb.ccc.ddd/stream.sdp where aaa.bbb.ccc.ddd is the IP address of the System that is to send the stream.

**Viewing using a Distribution Server**
Distribution servers offer a range of services for stream management that the System cannot offer directly. If users would like to make use of a distribution server for streaming transmission sent from a System, they can do so in accordance with the server's characteristics.

**Using a Proxy**
Multicast streaming transmissions require an appropriate network configuration, with limitations imposed by the presence of any Firewall or Proxy.
To offer good protection, these must block IP packets directed to unknown ports, such as the UDP ports used for audio and video streams. If the stream has to pass through such equipment, the equipment must be configured for any eventual multicast and have the appropriate ports enabled for streaming. If the stream is sent over an internal network, problems can still arise if it is necessary to pass through a firewall in order to gain external access.

**Deactivate Streaming**
In order to stop streaming, go to the "Deactivate" key on the streaming configuration page and press OK, or simply close the browser.

***PPPoE***

**(Point-to-Point Protocol over Ethernet)**

PPPoE is used to allow Internet Service Providers (ISPs) to use their existing Radius (*) authentication systems from dialup services on broadband/Ethernet-based services.

**"Automatic IP address":**

If selected, an automatic IP address will be assigned.

- IP address: Enter static IP address provided by the ISP
- Subnet Mask: Enter subnet mask provided by the ISP.
- DNS Server IP address: Enter DNS server address provided by the ISP.

**"Advanced".**

This section contains configuration parameters, assigned by the ISP.
Once **"PPPoE active"** is selected, enter following data:

- User name: user name assigned by the ISP.
- Password: password assigned by the ISP.
- Server name: ISP server name.
- Service Name: Default (field empty).
  Alpha numeric string for remote control of equipment connected with PPPoE server (ex. modem).
- **Connection mode:** Two different WAN connection modes are available:
  - Always connected
  - On call

**"Bandwidth".**

By selecting the "BANDWIDTH" icon, it is possible to enable and set maximum bandwidth usage limits (in Kbps). These limits can be different in transmission and reception, a very useful function for ADSL networks.
On the PPPoE configuration page there is a **PPPoE status LED**:

**White**: service not enabled
**Red**: service enabled, but not active
**Green:** service enabled and active

**Enable network**

It is possible to enable/disable any calling protocol.
Once explicitly disabled, a protocol will no longer appear in the "combo-box" for call selection. An incoming call will be always accepted, even if the incoming protocol is disabled.

* Radius (Remote Authentication Dial-In User Service ).

## Location

From the Home Page select:

1. SETTINGS
2. INSTALLATION
3. LOCATION.

The following page will be displayed:

This section contains regional data about the terminal:

**Terminal Name**: Enter a name for the terminal
**Country Name:** Select the country. An international country code will be automatically provided.
**Language**: Select the desired language.
**PBX:** Enter the PBX access number for an outgoing call.
**Audio Coding**: Select the type of audio encoding in "Transmission."
**Video Standard**: Select the video standard (PAL/NTSC), depending on the peripheral connected to Video Out.
**Selection Tone**: Select the desired tone.
**Camera Frequency**: <Auto> or 50Hz (NTSC).

## Load default settings

From the Home Page, select:

1. SETTINGS
2. INSTALLATION

From here, the default System configuration can be reloaded.
There are two options:

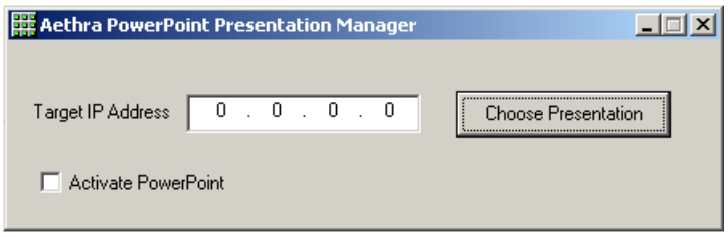
- "**User settings only**"
- "**Factory Defaults**".

Once selected the desired option from the dropdown menu, move to the "LOAD DEFAULT VALUES" icon and press OK.
Read all instructions carefully.
If the "FACTORY SETTINGS" option has been chosen, users will be asked, as a precaution, for confirmation. An affirmative answer will result in the factory settings being reloaded. All user settings and data will be lost, including call history, phonebook numbers and static IP addresses.

# Presentations

During a call, the system allows to send slides or still images in Jpeg format that have been previously loaded on the system using a PC.

- To load files onto the system, a PC with the AePPtManager program installed must be used. The program can be downloaded by entering the System WEB interface and selecting the “TOOLS” icon.
  1. Download the AePPTManager.exe software
  2. Start AePPTManager.exe
  3. For a correct operation, files must be extract to a PC folder.
  4. The self-extracting file includes AePPTManager.exe and AePPTManager.ini.
- Executing the program will display the following:




1. The program requests you to enter the system’s IP address and to choose the presentation to transfer.
2. By pressing the SLIDE key on the remote control, you will enter the presentation manager page.

3. Selecting the “DISPLAY PRESENTATIONS” icon and pressing OK will cause the first nine slides of the presentation being displayed on video.
4. You can select a slide by moving the remote control arrows and pressing OK. The slide will be locally displayed at full-screen and sent to the remote system.
5. The presentation can be managed using the remote control arrows or using the icons that appear in the lower area of the screen.

| | |
|---|---|
| | Go back to previous slide. |
| | Go to next slide. |
| | Show slide sequence. |

To leave the presentation, press the HOME key on the remote control.

## Slides storage

During a call, the system automatically stores slides or Jpeg images received from the remote system. Up to 50 images will be stored in a circular buffer, till the connection is terminated.

## Slides recall via WEB client

Enter the System WEB interface, select “Camera and Video Control” and in the dialog box labelled “Photo” click “Photo Download.”
A list will be opened, containing slides named SnapshotXX.jpg.

## Saving slides on a PC

When a file is selected, the image will be uploaded to the PC and shown by the browser. Do not forget to save it on the PC.

# Integrated Multi Conference Unit – MCU – (optional)

**Introduction**

This section is dedicated to the functional description of the MCU (Multi-point Control Unit) integrated in the System. The MCU, if not enabled by default, must be enabled by entering an enabling code supplied by the manufacturer.
For an easier reading of this document, MCU stays for “multiconference session”

**Colored keys functions:**

**Red**: associated camera activation
**Yellow**: associated camera activation
**Blue**: H.243 activation
**Green:** still picture display

## Technical Specification MCU

**Available Rate:**

"n. participants @ 2B"  no bonding ISDN
"n. participants @ 4B"
"n. participants @ 6B"
"n. participants @ 64"  bonding ISDN
"n. participants @ 128"
"n. participants @ 256"
"n. participants @ 384"
"n. participants @ 512"
"n. participants @ 768"
"n. participants @ 1152"

**Number Participants for mixed MCU or only IP:**

"8 participants @ 64"
"8 participants @ 128"
"8 participants @ 256"
"6 participants @ 384"
"5 participants @ 512"
"4 participants @ 768"
"3 participants @ 1152"

**Supported Standard:**

- ITU-T H.320 ISDN, leased networks.
- ITU-T H.323 IP networks.
- IETF - SIP (RFC3261) IP networks.
- PpoE.
- Video Coding H.261, H.263++, H.264
- Audio Coding G.711, G.722, G.722.1,G.728.
- LDAP H.350.
- Compliant MCU H.243, H.231.
- Compatible with analog and mobile networks.

**Video:**

- Frame rate: 15 fps @ 56 -128 kbps,
  30 fps @ up to 168 kbps.
- Video Resolution:
  4CIF 704 x 576 pixel,
  FCIF 352 x 288 pixel,
  QCIF 176 x 144 pixel,
  4CIF 704 x 576 pixel for still images (Annex D: H.261),
  Up to 1024 x 768 over XGA in H.263.
- Chair Control H.243.
- Dial In/ Dial Out capabilities.
- Continuous Presence.
- Encryption.
- H.239 Dual-Video from any site.

**Encryption:**

- AES Encryption standard H.233, H.234, H.235.

**Web management.**

## Multiconference Setup

Before activating a multiconference session, configuration is required.
From the Home Page select:

1. SETTINGS
2. MULTICONFERENCE

The following will be displayed:

In this menu you can set:

- **Network Type**: IP, ISDN or Mixed.
- **Conference Type**: allows you to select the number of participants and the desired rate (example: for an MCU IP you select 8@256 from the drop-down menu, which means that the MCU will allow the System to manage a multiconference with a maximum of 8 terminals (including itself), via IP, with a maximum rate of 256K for each connection).
- Preferred Audio Coding
- Preferred Video Coding

  Go to the corresponding drop-down menu, press OK, with the aid of the arrow keys on the remote control make your selection and press OK again to confirm. <Auto> is the default setting.

In addition, you can select the following options:

- Automatic rate adaptation and automatic encoding adaptation

  If automatic adaptation is enabled, the System will automatically adapt the multiconference to the audio/video encoding and bit rate of the lowest quality connection within the conference, without excluding any participant.
- Continuous presence

  Enable/Disable transmission of Continuous presence: for multiconferences (at least two participants) all participating sites receive the signals simultaneously from all participating terminals.
- Ask to save scenario: At the close of the multiconference, the system asks whether save in the phonebook all information needed to repeat it, with an editable “conference name.”
- Mode (only for MCU ISDN or Mixed)

  Multiple of 64K
  Multiple of 56K.

- Master or Slave Cascade Role.

  This option allows you to set up cascaded MCUs in a two-level hierarchy tree. Corresponding to the base node of the cascade there is the Master System, with Slave Systems for the child nodes.

**Note**
**In a mixed-mode MCU session, the user can choose to substitute NIC protocol for ISDN. So in a multiconference with an active NIC connection, no ISDN connections are allowed, and in a multiconference with an active ISDN connection, no NIC connections are allowed**

## How to start a multiconference

To establish a multiconference:

1. From the Home Page, select the VIDEO icon, or press the “Call” key on the remote control.
   You will enter the Audio-Video calls page.

2. Choose desired MultiConference type: MCU IP, MCU ISDN, MCU (mixed mode).
3. Chose the desired rate and number of participants.
4. If the MCU has not been configured, it is possible to enter the configuration menu previously described by selecting the CONFIGURE MCU icon and pressing OK.
5. If the MCU has already been configured, go to the “Active Conference” icon and press OK to start the multiconference. The same can be obtained by pressing the “CALL” key on the remote control.
6. Local video will be displayed at full screen.
7. To add participants, press the remote control “CALL” key
8. To disconnect participants, press the remote control “DISCONNECT” key.

**H.243 function**

From the fullscreen page of MCU manager or a participant terminal is possible to get MCU control, conforming to H.243 protocol, by pressing the BLUE key.

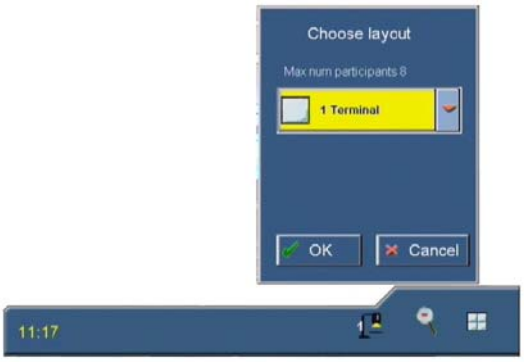
A page will appear, where is possible to:

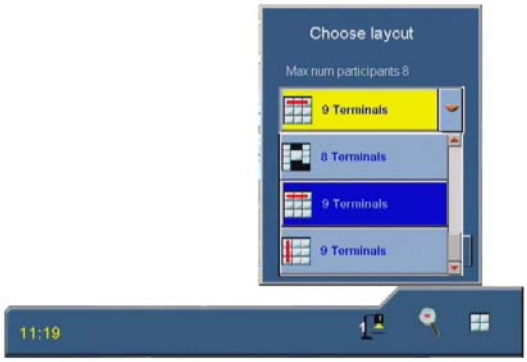
- Request Chair control
  - Close conference
- Send local on air
- For each terminal in the list
  - Information: connected users
  - See
  - Send on air
  - Disconnect

**Remote terminals disposition and visualization**

| | |
|---|---|
| | "Terminals disposition" icon |
| | "Video Zoom +" icon |
| | "Video Zoom -" icon |

With MCU on and various connected terminals, is possible to choose disposition and how many video flows should be displayed. From the fullscreen page of the manager, press **right** or **left** keys to select the "terminals disposition" icon, and press OK.




Once the window is opened:

1. By means of **up** and **down** keys choose the visualization mode, then confirm selection with OK key.
2. Close the window by means of the OK icon, or with the X icon to discard selection.

**Note:**

**If Continuous Presence transmission is enabled in configuration (see Multiconference setup chapter), "terminal disposition" is sent to all terminals**

| Terminals disposition | Description |
|---|---|
| **Automatic** | Always shows all participants.<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **1 Terminal** | Show active speaker video flow.<br>**!Note**<br>**This disposition enables Voce Switching.** |
| **2 Terminals** | Shows (horizontally tiled) two terminals video flows only, active speaker and previous speaker, independently from connected terminals number.<br>**!Note**<br>**This disposition enables Continuous Presence Active speaker does not see its video.** |
| **2 Terminals** | Shows (vertically tiled) two terminals video flows only, active speaker and previous speaker, independently from connected terminals number.<br>**!Note**<br>**This disposition enables Continuous Presence Active speaker does not see its video.** |
| **3 Terminals** | Shows three terminals video flows only, independently from connected terminals number, as in picture.<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **3 Terminals** | Shows three terminals video flows only, independently from connected terminals number, as in picture.<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **4 Terminals** | Shows four terminals video flows only, independently from connected terminals number, as in picture.<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **7 terminals** | Shows seven terminals video flows only, independently from connected terminals number, as in picture. Big square is for the active speaker.<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **8 terminals** | Shows eight terminals video flows, as in picture.Big square is for the active speaker.<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **8 terminals** | Shows eight terminals video flows, as in picture.Big square is for the active speaker.<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **9 terminals (1 not used)** | Shows eight terminals video flows, as in picture.<br>**Squares are used in horizontal order.**<br>**!Note**<br>**This disposition enables Continuous Presence.** |
| **9 terminals (1 not used)** | Shows eight terminals video flows, as in picture.<br>**Squares are used in vertical order.**<br>**!Note**<br>**This disposition enables Continuous Presence.** |

By means of **Cancel** key choose if visualize the **status bar**.

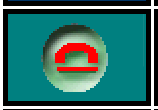
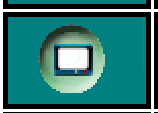
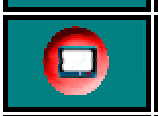
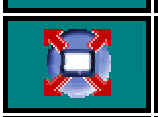
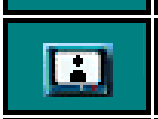
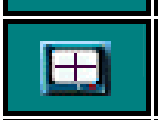
## Multiconference Management

Once the first 6 steps of paragraph “How to start a multiconference” have been accomplished, press the HOME key on the remote control to display the multiconference management interface.

The window in the centre displays current local video. The following table shows various information icons for the local terminal (the MCU manager). Some of displayed information is also valid for other connected terminals.

### MCU control panel icons

MCU manager by means of control panels get information and can interact using following icons.

| ICON | STATE | NOTE |
|---|---|---|
| | **Channel** is connecting | Yellow means connecting phases |
| | **Channel** connected | Connection rate is shown |
|  | **Terminal** connected | For terminal disconnection |
| | **Terminal** not connected | To make a call |
| | **Microphone** active | For Mute activation (The audio is not transmitted) |
| | **Microphone** in MUTE | For Mute deactivation |
|  | **Video** active | For broadcast activation |
| | **Video** not active | Terminal not connected |
| | Previous active **speaker** | For broadcast activation |
|  | Current active **speaker** | For broadcast activation |
|  | **Video** in broadcasting | For broadcast deactivation |
|  | **Voice switched** | Active speaker in full screen<br>For ContinuousPresence activation |
|  | **Continuous Presence** | All participants are on the screen (default).<br>For **Voice Switched** activation |
| | **Conference status** | For terminal information<br>Stay for “conference status” table |
| | **Encryption** not active | Stay for “Encryption” |
| | **Encryption** disabled by user | Stay for “Encryption” |
| | **Encryption** only in transmission | Stay for “Encryption” |
| | **Encryption** active | Stay for “Encryption” |

To add participants using the alphanumeric keys of the remote control, go to a video control panel, and select the “HANDSET” icon; press OK to start the call procedure.
Three options for choosing a remote user will be presented:

- Phonebook
- Video
- Audio

Alternately, once the HANDSET icon has been selected, directly press the CALL key on the remote control.

Repeat the above procedure for each terminal to be connected, up to the preset limit.

To add participants to the conference from fullscreen page, please press the “CALL” key: the “Audio – Video Call” page will appear.

**There are three different MCU modes:**

**1. Continuous Presence**
When second terminal joins the conference system automatically switches to this mode, that allows all participants to see all connected terminals at the same time. Video windows disposition can be chosen among available by selecting the “Terminals disposition” icon.

**2. Voice Switched**
MCU manager detects the “active speaker” (person speaking at the moment), and sends his video to all other participants. Active speaker terminal receives video of previous speaker.

**3. Broadcasted Video**
MCU manager sends selected video to all participants.

In any case MCU manager can switch among the three modes by means of the dedicated icons in the MCU control page.

**Terminals status during a MCU**

**A. Status of MCU manager**
By selecting the "Conference Status" icon a window will appear, with information about connection settings of local terminal.
It's moreover possible to:

Select "Duration" icon to access MCU timing management page

- It's possible to select "No time limits" or a time for MCU conclusion
- "Close Now" will immediately close the MCU
- "OK" to confirm choices
- "Cancel" to discard changes

Select "Broadcast"

**B. Status of MCU "Terminal n."**
By selecting the "Conference Status" icon a window will appear, with information about connection settings of terminal, number of connected remote terminals, kind of call (outgoing/incoming), terminal number.
It's moreover possible to:

- Select "Broadcast", with disconnected terminals too
- Select the "**i**" icon, with connected terminals only, to visualize connection diagnostics
- Choose between "Always accept" or "Refuse" incoming IP or ISDN calls, with disconnected terminals only.
- Choose "Control Number" for ISDN, to insert the only number allowed to join the conference for that terminal.
- The "**X**" icon closes the page.

## Ending a Multiconference

There are two ways to end a multiconference:

1. From the full-screen video page, press the remote control DISCONNECT key
   - The "**Cancel**" icon closes the page without performing any operation
   - By means of arrow keys "UP" and "DOWN" you can select and disconnect a participant
   - "**Close Now**" icon will immediately close the whole MCU (disconnection of all terminals)
2. From the multiconference management interface, select the "Menu" icon on the status bar and press OK.

In both cases the System shows:

- A message asking confirmation for the multiconference end
- A message asking whether to save in the Phonebook all information needed to repeat the multiconference, with an editable "**Conference name**"

## Dual Video in MCU

Dual Video functionality, based on H.239 standard, is available for multiconference calls, even in mixed mode (only SIP participants will not see the dual stream).
To start a Dual Video session in a multiconference:

1. Start a multiconference (see the “How to Start a Multiconference” section)
2. Connect all desired terminals
3. From the terminal (manager included) that want to send the second video, press remote control ”Dual” key
4. Select the V.Input for the DualVideo and press “OK”
5. Press “YES” icon

**Note**
**One other icon (camera or XGA) present in the status bar means active Dualvideo**

# System Diagnostics

The System’s diagnostics menu allows you to perform tests and checks to verify that the system is properly working.

From the Home Page select:

1. SETTINGS
2. DIAGNOSTICS

The following page will be displayed:

## Terminal test

This option performs an internal test of the system.
The test can be useful to diagnose audio/video problems encountered during a call. The test uses encoded local audio and video to simulate a connection. Press any keys to stop the test.

## Interfaces

This option performs an internal test of the following interfaces:

- "Audio".
  For each input and output, peak values, noise and status can be visualized by means of graphical view-meters; in addition, the transmission and reception streams can be seen.
  Finally, it is possible to generate a tone (Tone Loc.) to test the speaker volume, and the selection of "Tx Tone" during a connection will generate an audible tone at the remote system.
- "Video".
  In this section you can view information on the active video input type and the video standard in use.
- "Network".
  In this menu you can view information about the detected interfaces.
  For ISDN accesses an LED status indicator is available:
  Red – BRI access is disabled or in error.
  Yellow – BRI access is functioning, but Level 1 is not active.
  Green – Level 1 is active.

## Connection Status

This section contains information about call status, including parameters such as incoming and outgoing audio and video bandwidth, incoming and outgoing video frame rates, and protocols in use. The "Connection status" page is displayed in a window overlaid on the current video. The CANCEL key on the remote control can be used to change the transparency. To move within the table, press the OK key, then use the up and down arrows keys to navigate. To exit the page, press the left arrow keys.

**ISDN**

In an ISDN call, you can check certain data about the connection: rate, audio encoding, video encoding, frames/sec., and status of data channels.
In addition, by going to the "Accesses" icon and pressing OK, you can enter a page of advanced diagnostics, used to monitor in greater detail the state of individual ISDN accesses.
For each access you can see whether it is configured or not, whether it is active or not, and for each single access channel you can gain information such as the state, the number, cause of disconnection, "Error H.221" messages, and the delay.

**IP**

For IP calls, you can check certain data related to the Audio and Video IP connection: bit rate, audio and video encoding types, frames/packets (for audio), frames/sec. (for video), and number of lost packets.

**NIC**

For NIC calls you can check a series the following data about the connection: bit rate, audio and video encoding types, frames/sec., and DATA channel status.

## Hardware

This section contains basic hardware information such as internal temperature and MAC address. Information about the processor and audio/video system can also be found in the Audio and Video submenus.

## Software Release

This section shows contains information about the software modules installed on the system, including versions, build dates, etc.

# Connecting a personal computer

The System can be connected to a personal computer either directly or via a network (LAN) in order to update software, change remote settings or perform diagnostic tests.

## Connecting a PC to the System without LAN

To connect the System to a personal computer not connected to a LAN:

1. Connect an Ethernet cable to the System connector and to the network interface card of your PC.
2. From the home page, navigate through the following menus:
   Home Page
   SETTINGS
   INSTALLATION
   NETWORK INTERFACES
   IP
   IP CONFIGURATION
   IP CONFIGURATION
   Ensure that the System belongs to the same subnet as the PC, but has a different address. If this is not true, change the System's IP address and restart the system.
3. Start the browser on your PC. In the address bar, enter the System's IP address. The web page manager will appear.

## Connecting to the System via a PC in a LAN

To connect to the System from a PC in a LAN:

1. Ensure that a LAN cable connects the System's rear connector to your LAN. The PC can be connected to a LAN node or to the LAN OUT connector at the rear of the System.
2. Switch on the System.
3. Navigate through the following menus:
   Home Page
   SETTINGS
   INSTALLTION
   NETWORK INTERFACES
   IP
   IP CONFIGURATION
   IP CONFIGURATION
4. If your LAN does not use a DHCP server, leave the Automatic IP Address box unchecked and enter the IP Address, the SubNet mask, Gateway IP Address and the DNS Server IP Address supplied by the network administrator, then restart the System.
5. On the PC, start Internet Explorer. Enter the System's IP address in the address bar of the browser.
6. The web page manager will appear.

# Remote management

The System incorporates an integrated network server that allows management of the unit from a remote PC. Through this interface it is possible to:

- Execute diagnostic tests.
- Check a system.
- Change System settings.

# Access to the web page

Start a web browser on your PC. Enter the System's IP address in the address bar of the browser.
A request to enter the network password will be displayed. Always enter "Aethra" in the User Name field. The password can be changed from the default of "1234" in the system configuration menu.

1. Home Page
2. SETTINGS
3. INSTALLATION
4. NETWORK INTERFACES
5. IP
6. SERVICES
7. Web – Telnet Management

**Note:**
**The default Password is 1234.**

For correct web page viewing in Windows Server 2003 you will need to activate script execution in Internet Explorer by selecting:
Tools / Internet Options / Security / Custom level / Scripting / Active scripting / Enable.
A page very similar to the System user interface Home page will be displayed. From here, you can make a call in the way previously described. The arrangement of the menus for configuration and diagnostics is also the same.
In addition to the normal menus, a TOOLS section has been added where the following downloads are available:

- The program DataConf.exe enables you to use NetMeeting 3.xx with ISDN, IP, or NIC calls for multimedia activities (data channels T.120). See section "Managing the Data Conference Software".
- The program AePPTManager.exe enables you to load a PowerPoint presentation in the system.
- The file NoteB.dat enables you to save all the phonebook data (MCU excluded), and can also be used to transfer the data between systems.
- The file NoteBm.dat enables you to save all the phonebook data, and can also be used to transfer the data between systems.
- Finally, a module is present that enables you to update the System phonebook data, using files that are compatible with Aethra's proprietary phonebook format.

From the Home Page, click on TOOLS to access these options.
The language of the web interface can be toggled between English and Italian by clicking on the flag displayed at the top centre of the Home Page.

When using the web-based management features, use the icon present on all pages to save changes.

# Updating software

1. Download the update to a folder on a connected PC.
2. When executed, the program will display the following:

3. Enter the IP address of the system to be updated in the field labelled “Host IP Address.”
4. Press Start to begin the download.

**! Attention: During this procedure, follow the instructions displayed on the monitor. The download process requires a few minutes to complete. When the download has finished, the system will restart automatically.**

# Data Conference with Microsoft NetMeeting 3.xx

The Data Conference software that has been introduced is compatible with version 3.xx of Microsoft NetMeeting and allows you to connect via a LAN the System to a PC hosting NetMeeting.
This enables a user on a local network to exploit the System as a kind of bridge in order to manage T.120 videoconference data traffic on ISDN, LAN or NIC.

# Download Data Conference

The file DataConf.exe is available for download on System web page, in the TOOLS section described above.

**! It is important to download the file DataConf.ini as well. This enables automatic configuration of the previous program and must be installed in the same folder where the DataConf.exe file was saved.**

1. Download the software DataConf.exe;
2. Will be downloaded dc.exe file, start the file.
3. Download the software DataConf.ini
4. Start DataConf.exe.

**Use of Data Conference**

In order to use the System as a bridge for data transfer, navigate through the system menus as shown:

1. Home Page
2. SETTINGS
3. AUDIO – VIDEO – DATA
4. DATA CHANNEL

Configure this section as illustrated:

1. Data Channel: YES
2. Modem: NO
3. MLP: T.120
4. Serial Rate: 115200

For uses over LAN, go to the following sections:

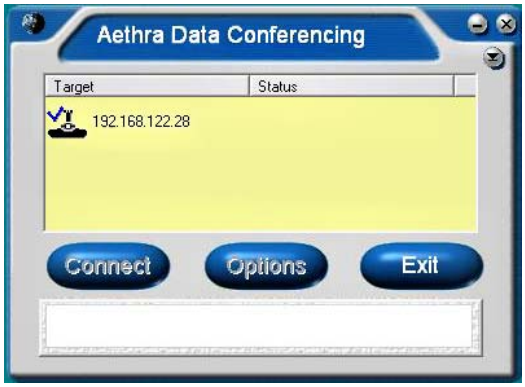
1. Home Page
2. SETTINGS
3. INSTALLATION
4. NETWORK INTERFACE
5. IP
6. H.323 SETTINGS

At this stage:

1. Check the box “Use NetMeeting”
2. Enter the IP address of the PC hosting NetMeeting.

## Managing the DataConference software

Data Conference is typically used when two ISDN, LAN, or NIC connected users decide to start a conference using T.120 communication.
Start the DataConf.exe program.




The program creates an automatic connection between the System and the PC. At this point, several items of information concerning the connection are displayed:

- The System IP address.
- The network interface used for video calls.
- The type of call: incoming or outgoing.
- The T.120 data channel active.
- The status of the NetMeeting connection between the two users.

Once the connection has been established, NetMeeting 3.xx is displayed in the foreground and you can perform all data conference management operations.
If you desire to change the IP address of the System, you have to disconnect, press the key “Configure” and enter the new address to use.

**!** **In the case of NIC conferences, it is necessary to configure one of the two users as Master by using the special DataConf menu (in order to access DataConf menu click on located at the top right of the graphic displayed).**

# Appendices

## Network Requirements IP\H.323

The network requirements for point-point connections between videoconferencing terminals are as follows.
The complete network path connecting two H.323 terminals must have a constant available bandwidth for the whole duration of the connection. The effective bandwidth used on LAN/WAN Full-Duplex network connections is equal to the sum of the Audio Rate and Video Rate, plus approximately 20% for TCP/IP overhead.
In the case of Half-Duplex LAN/WAN networks, the aforementioned bandwidth is doubled. For example, if it is necessary to guarantee a 384K connection for the video and a 64K for the audio, the bandwidth allocated must be at least (384+64) *1.2 ≈ 540K for each Half-Duplex connection. In case of dial-up WAN links, it should be underlined that their efficiency in terms of "useful" bandwidth is approximately half the total available bandwidth.
It is always preferable to use mechanisms such as QoS for WANs because they take into account the total bandwidth required for a videoconference, rather than relying exclusively on over-dimensioning the network. This is necessary for the handling of increasing numbers of simultaneous connections or a network that is already loaded.
The network needs to be set up so that latency and jitter are as low as possible. Extended times for latency and variable jitter can create serious problems, especially in video quality.
It is always preferable for H.323 terminals to be connected to switched type LAN connections to avoid the traffic generated by terminals being superposed on the normal traffic present on the network.
It is preferable to avoid using NAT-type protocols on router interfaces that route H.323 packets, since NAT protocols often do not allow the correct routing of connections.
If NAT, firewall or access list implementations are to be used, they must be H.323 compatible.

**Network Requirements for Multivideoconferences H.323 (MCU)**

The same requirements indicated above apply to multipoint connections between more H.323 videoconference terminals.
In this case, more H.323 streams converge in the network, increasing the local network-load. The consequence is that the bandwidth allocated must be the sum of the bandwidths required for each of the individual connections, calculated according to the description given in the previous section.
The network requirements previously described are also valid for connections between H.323 and H.320 terminals via gateways. In this case, more than one H.323 stream converges on the gateway increasing local network traffic. As such, the necessary bandwidth, at the point where the H.323/H.320 gateway is to be installed, must be the sum of the bandwidths required for each individual connection, calculated as shown in the previous section.

# NAT – FIREWALL Interoperability

**Introduction**

There are many strategic advantages for companies that succeed in making all traffic converge from voice applications, video and data to one IP network infrastructure.

Unfortunately, the drive to concentrate all IP communications onto one single network has reduced. The connection between a company's corporate network and the Internet world is accomplished with firewalls and devices using NAT (Network Address Translation), which block voice and video calls via IP. Firewalls block IP traffic for video and voice by preventing any unsolicited communication from the outside. Devices implementing NAT block IP traffic because all equipment on the internal network uses private IP addresses, and can therefore not be contacted from outside the local domain.

There are several solutions to the problem of getting IP communications past NAT and firewalls: bypassing the firewall or NAT device, upgrading the network infrastructure with an Application Level Gateway (ALG), and going out through the firewall or NAT using semi-tunnelling connections. Going around the firewall or NAT device is not the best solution for most companies. Removing the firewall or placing videoconferencing equipment on an unshielded section of the network could seriously compromise the network's security.

Using these devices is very expensive and besides this an access policy for Firewalls and NATs would be needed. These devices should be located along the communication path at every point where a NAT and Firewall are present.

A second solution is the improvement of the network by the introduction of an ALG, but this is intrusive and potentially expensive. ALGs are software packages specifically designed for firewalls from various producers that examine every packet attempting to pass through the firewall in order to determine whether it concerns a known protocol like H.323 or SIP. If the packet contains a known protocol, the Firewall allows it through. However, like Proxies and MCUs that go around firewalls, ALGs also need an access policy for firewalls and every firewall or NAT device needs up-to-date ALG software. Because new protocols are continually being developed, ALG software must be updated frequently.

**IP Voice and Video Crossing NAT and Firewall**

The use of existing network infrastructures for the transmission of voice, video and data promises interesting strategic advantages for companies of all sizes. Commonly known as "rich media communications" or "Internet Protocol (IP) communications" these technologies for converging networks offer new opportunities to communicate, coordinate and collaborate with customers, suppliers, commercial partners and others all over the world.

Unfortunately, the protocols used for IP communications conflict with most of the security mechanisms for networks (such as Firewalls and NAT), resulting in protracted or late implementation times for IP video and voice applications.

**Firewalls and NATs – How they work**

In an IP network, every device is assigned a unique IP address. All computers, telephones, and videoconference terminals have at their disposal approximately 65,000 ports for the purpose of establishing communication channels to transmit data to other devices on the network.

Messages between IP network devices are composed of packets that contain the following information: the IP address of the terminal that has generated the message, the port number from which the message has been sent, the IP address of the destination terminal, the port number at the destination, and the data being sent.

**Firewalls**
Companies that allow connection to the Internet by their employees typically install a firewall in order to prevent external access of or tampering with internal data.
The firewall examines the destination IP address and port number of every packet received from outside. Usually, firewalls are configured in such a way that if a computer from inside the firewall requests data from a computer outside the firewall, the response packets will be allowed through from the external computer, but only if they are sent to the IP address and port of the internal computer that generated the request.
If the Firewall receives a packet destined for a computer that is located internally and determines that the destination computer has not initiated any communication, the firewall discards the incoming packet.
Firewalls are nearly always configured to block all incoming traffic that has not been explicitly requested. Internal web servers are the exception: they must be accessible from the outside. To allow this, the network administrator configures the Firewall to let through packets destined for port 80 of the IP address of the web server. This operation allows external users to send requests to connect to the company's web server in order to access data on that server.

**NAT (Network Address Translation)**
Network Address Translation is an Internet standard that allows a LAN (Local Area Network) to use a set of IP addresses for internal traffic and another address (or set of addresses) to connect to services on an external network (the internet, for example). Devices that implement NAT are located at boundaries between the LAN and the external network, and their purpose is to provide translation of IP addresses for all packets that are destined for the external network. Many organisations use NAT as a security mechanism because it masks the internal IP addresses – if hackers do not know the IP address of a machine, they cannot attack it and cause disruptions. NAT also allows a company to use more IP addresses than they might otherwise be allocated. Since these addresses are only used internally, there is no problem with IP address conflicts with other organisations.

**Problems with Video and Voice Communications on NAT/Firewall Protected Networks**
The IP based voice and video protocols like H.323 require that terminals be capable of establishing audio-video communication channels using IP addresses and data ports. In this situation, a problem arises: terminals must "listen" for incoming calls to establish IP connections, but the firewall is generally configured in such a way as not to allow packets past that are not expressly requested. Even if the network administrator left a port open for the terminal to receive notification of a call (port 1720, designated as a "well-known TCP port") the video and voice communication protocols for IP necessitate the opening of other ports in order to receive control messages and open audio and video channels.
The identities of these additional ports are determined dynamically, not in advance, meaning that the network administrator would have to open all the firewall ports to allow video and voice communication, thus virtually disabling the firewall. Network administrators are unlikely to do this (and wisely so), since it effectively eliminates network security policies.
NAT also creates an obstacle for voice and video communications over IP. NAT allows an organisation to assign private IP addresses to machines on the local network, but routers that control the flow of data towards the internet can handle only packets with routable addresses or public IP addresses.
A terminal located behind the NAT device on the LAN can initiate communication with any other terminal in the same LAN because the IP addresses within the LAN are routable, meaning that it is possible to have subnets in a company managed by an internal router. This allows the establishment of audio-video communications on different branches of the subnet.

Because they have private addresses, and are therefore not accessible from outside the NAT, terminals on the LAN cannot be reached by externally originating calls. Even if they initiate calls to external terminals, a problem still arises. When the call is initiated, the IP address of the calling terminal is contained in the payload of the packet sent. The destination terminal receives call setup packets, examines them and starts to transmit audio and video towards the terminal from which the call was received, and from which the IP address was obtained by examining the contents of the received packets.
If this IP address is private, the router for Internet access discards the audio and video packets sent from the terminal external to NAT towards the internal terminal because the packets sent were non-routable. The connection between two terminals appears to be successful but in reality the NAT-internal terminal never receives the audio or video from the external terminal.

**Solution for the NAT/Firewall Problem**
The only equipment that does not create any of the problems described above is a NAT/firewall H.323-compatible device. Such a firewall does not block the TCP 1720 port and allows access to the other, dynamically-determined H.323 ports.
Videoconferencing systems usually have private IP addresses that are not accessible from external routers. To allow calls to function properly, the network administrator can define static NAT (a permanent association between a private IP address and a public IP address reserved for H.323 videoconferences) for every terminal that must be accessible from an external connection.
The NAT device substitutes the static IP address in the payload and header setup packet sent from the internal terminal to the external terminal. The destination terminal uses that address for addressing the reply packets, which are routed through the NAT device to the internal terminal.

**Firewall ALG**
Application Level Gateways (ALGs) are firewalls programmed to recognize specific IP protocols like H.323.
Instead of looking only at the information contained in packet headers to determine whether to transmit or block packets, ALGs analyse in detail the data contained in the payload packet. The H.323 protocol inserts important control information such as audio and video port identification in the payload packets. The terminal expects to receive audio and video connections from the remote calling terminal on these ports. By analysing which port the terminal expects to use, the ALG dynamically opens only those ports, leaving the others closed to preserve network security. An example of a firewall ALG follows.
The Aethra Application Level Gateway is present in the Aethra Stargate xDSL Router and allows any videoconferencing terminal, independent of its manufacturer, resolve the NAT/firewall problem. The Stargate router is capable of checking every incoming and outgoing H.323 call and dynamically opening only the ports being used for the H.323 videoconference.
The Stargate router also supports NAT functionality and is therefore capable of substituting the public NAT address for the private IP address automatically inserted in the H.323 payload packets by the internal terminal. When the Aethra ALG functionality is used with an Aethra videoconferencing system, the “Aethra NAT” function of the videoconferencing system must be disabled because the network equipment is H.323 compatible.

# Wireless Cards

The minimal cards wireless requirement to use the system in wireless nets is standard Wi-Fi PCMCIA IEEE 802.11b.
Some models of cards wireless supported:

- BENQ AWL100
- CISCO/AIRONET AIRPCM 350
- All AGERE/ORINOCO compatible cards.

For other information relative to the compatibility Wi-Fi 802.11b, 802.11g, 802.11a please contact Help Desk Aethra Telecomunicazioni SpA.
Mail: service.center@aethra.com

# Technical specifics

**Supported Standards**

- ITU-T H.320: ISDN, leased networks
- ITU-T H.323: IP networks
- IETF-SIP (RFC3261): IP networks
- PPPoE
- Video: H.261, H.263++, H.264, H.239, H.241
- Audio: G.711, G.728, G.722, G.722.1, MPEG4 AAC-LD
- Data: T.120
- LDAP: H.350
- MCU compatibility: H.243, H.231

**Transmission**

- Bit rate:
  - 56 kbps ÷ 768 kbps over ISDN BRI
  - 56 kbps ÷ 2 Mbps over ISDN PRI**
  - 64 kbps ÷ 4 Mbps over IP (H323/SIP) Asymmetric rates
  - 56 kbps ÷ 2 Mbps over V.35/Leased

  **in North America ISDN pri/t1 at 1544 kbps (ansi t1 recommendations)
- Simultaneous video motion coding and PC presentations from the XGA input

**Video**

- Frame rate:
  - 15 fps @ 56 kbps -128 kbps
  - 30 fps @ 168 kbps - 4 Mbps
- Video resolution:
  - 4CIF 704 x 576 pixels
  - FCIF 352 x 288 pixels
  - QCIF 176 x 144 pixels
  - 4CIF 704 x 576 pixels for still images (H.261 Annex D)
  - Up to 1024 x 768 pixels over XGA in H.263
- Remote camera control: H.281 (H.320 - H.323)

**Audio**

| Audio | Band | Bit rate |
|---|---|---|
| G.711 | 300 ÷ 3400 Hz | 56 kbps |
| G.728 | 50 ÷ 3400 Hz | 16 kbps |
| G.722 | 50 ÷ 7000 Hz | 48/56 kbps |
| G.722.1 | 50 ÷ 7000 Hz | 24/32 kbps |
| AAC-LD | 50 ÷ 14000 Hz | 48/56/64 kbps |

- Echo cancellation: Full-duplex
- Adaptive post filtering
- Automatic Gain Control (AGC)
- Automatic Noise Suppression

**Digital Microphone Pod**

- Range: 360°
- Response: 50 ÷ 14000 Hz
- Microphones: 3
- Mute button
- Up to 2 pods in a daisy-chain configuration

**Supported Monitor**

- Format: PAL, NTSC or HighDef
- Single, dual monitor, HighDef
- PIP and PaP function
- 16:9 support
- Dual Monitor Emulation

**Network Interfaces**

- BASIC VERSION:
  - Ethernet -
    - 2-Port 10/100BASE-T full-duplex with integrated switch Ethernet: 2 RJ-45
- OPTIONAL
  - ISDN
    - 1/6 BRI with integrated channel aggregator: 1/6 RJ-45
    - 1 E1/T1 PRI with integrated channel aggregator: 1 RJ-45
    - Leased networks
    - X.21/V.35/RS366/RS449: 44 pin Hi/Den
    - G.703: 1 RJ-45

**Network Protocols**

- TELNET, HTTP, SNMP, DNS, DHCP, RTP/RTCP, TCP/UDP, ARP

**Network Features**

- Differentiated Service (DIFFSERV), IP Precedence, IP Type of Service (ToS), Auto Gatekeeper Discovery, Clever Packets Management (AeCPM)

**Audio/Video Interfaces**

- Video inputs:
  - Main camera: Integrated Y/C, not accessible
  - VCR: Composite (RCA)
  - Doc. Cam. 1: S-video (Mini-DIN)
  - Doc. Cam. 2: S-video (Mini-DIN)
  - Doc. Cam. 3: Composite (RCA)
  - XGA In: DB 15 Hi/Den
- Video outputs:
  - Monitor 1: Composite (RCA), S-video (Mini-DIN)
  - Monitor 2: S-video (Mini-DIN) with monitor detect
  - VCR: Composite (RCA)
  - XGA Out: DB 15 Hi/Den
- Audio inputs:

| Connection | Level | Connector |
|---|---|---|
| 2xPod mic. 360° | Dig. | RJ-11 6/6 |
| Aux. mic. | Mic | Stereo jack 3.5 mm |
| Audio In | Line | RCA |
| VCR | Line | 2 RCA (L/R) |

- Audio outputs

| Connection | Level | Connector |
|---|---|---|
| Monitor 1 | Line | 2 RCA (L/R) |
| VCR | Line | 2 RCA (L/R) |

**HighDef (XGA)**

- Input: VGA, SVGA, XGA
- Output: VGA, SVGA, XGA

**Auxiliary Interfaces**

- Data RS232: Mini-DIN 8-pin with DB9 adapter
- Diagnostics RS232: Mini-DIN 8-pin
- VISCA RS232: Mini-DIN 8-pin supports Canon or Sony, aux PTZ camera
- PC card: 1 PCMCIA, type II for Wi-Fi card

**Closed Captioning/Text Chat**

- T.140 text chat, available from Web

**User Interface**

- Multilingual on-screen graphic user interface
- User selectable languages
- Infrared remote control for full function control
- Contextual help
- Diagnostics and management functions
- Call progress monitoring
- Supports AMX™ or Crestron™
- Customizable Graphic User Interface

**Multipoint Function (option)**

- Integrated MCU: H.320, H.323 and SIP mixed mode
  - 8 participants @ 256 kbps
  - 6 participants @ 384 kbps
  - 5 participants @ 512 kbps
  - 4 participants @ 768 kbps
  - 3 participants @ 1 Mbps
- Compatible with analog and mobile networks
- Video coding: H.261, H.263++
- Audio coding: G.711, G.722, G.722.1, G.728
- Chair control: H.243
- Dial-In/Dial-Out capabilities
- Continuous Presence
- Encryption
- H.239 Dual-video from any site

**Encryption**

- AES encryption standard H.233, H.234, H.235

**Web Management**

All the configuration, call, diagnostics and management functions are accessible using the following web browsers: Microsoft® Internet Explorer™, Netscape Navigator™

**Remote Diagnostics and Management**

| | Local | Web Browser | SNMP |
|---|---|---|---|
| Self test | Yes | Yes | Yes |
| Diagnostics | Yes | Yes | Yes |
| Configuration | Yes | Yes | Yes |
| Call | Yes | Yes | |
| Error tracking | Yes | Yes | Yes |

**Integrated Presentation**

- Supported applications: Microsoft® PowerPoint®
- Multimedia support: T.120

**Power Supply**

- 100-240 Vac 50-60 Hz 1.5 A Max

**Dimensions**

- AVC 500
  - Width: 44 cm (17.31")
  - Height: 5.7 cm (2.28")
  - Depth: 21 cm (8.26")

# Electrical Features of Connectors

**DIGITAL MICROPHONE POD**

Proprietary connector – use only with AETHRA microphone pod. Do not use in configurations other than those expressly described.

**LINE IN/OUT**

RCA

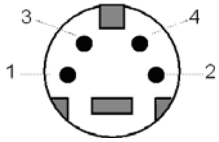
Pin Connection:
Tip: Unbalanced signal
Jacket: Ground

| | |
|---|---|
| Nominal Input/Output Level (RCA): | -14 dB (150 mV rms. standard LINE level) |
| Nominal Input Impedance (RCA): | Zout = 10 KΩ |
| Nominal Output Impedance (RCA): | Zout = 100 Ω |
| Maximum Input Level (RCA): | +8 dB (2 V rms.) |
| Maximum Output Level (RCA): | +2,11 dB (1 V rms.) |
| Nominal Dynamic Range: | > 50 dB |

## VIDEO IN/OUT

RCA

MINIDIN




Video IN/OUT can be PAL or NTSC standard (but not both at once).
RCA plugs are for CVBS (Composite). MINIDIN are for Y/C (separate Luminance / Chrominance)

Timing:

| | |
|---|---|
| Horizontal scan frequencies: | 15625 Hz for PAL |
| | 15734 Hz for NTSC |
| Vertical scan frequencies: | 50 Hz for PAL |
| | 60 Hz for NTSC |
| | (both interlaced) |
| Color subcarriers: | 4.433619 MHz for PAL |
| | 3.579545 MHz for NTSC |

Levels on RCA:

Tip: 700mVpp Composite Signal + 300mVpp Composite Sync,
75Ω Nominal Impedance

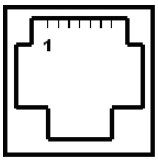
Jacket: Ground for tip

Levels on MINIDIN:

| | |
|---|---|
| Pin 4: | 700mVpp Luminance Signal + 300mVpp Composite Sync, 75Ω Nominal Impedance |
| Pin 3: | 300mVpp Chrominance Signal, 75 Ω Nominal Impedance |
| Pins 1 and 2: | Ground for Pins 3 and 4 |

## LAN SWITCH 10/100 BASE T

RJ45




Pin connection (LAN IN):

| | |
|---|---|
| Pin 1: Transmit data (+) | Pin 5: N.C. |
| Pin 2: Transmit data (-) | Pin 6: Receive data (-) |
| Pin 3: Receive data (+) | Pin 7: N.C. |
| Pin 4: N.C. | Pin 8: N.C. |

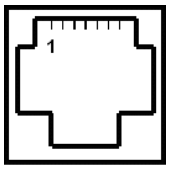
Pin connection (LAN OUT / direct PC connection):

| | |
|---|---|
| Pin 1: Receive data (+) | Pin 5: N.C. |
| Pin 2: Receive data (-) | Pin 6: Transmit data (-) |
| Pin 3: Transmit data (+) | Pin 7: N.C. |
| Pin 4: N.C. | Pin 8: N.C. |

LAN IN can be directly connected to a 10/100Mb LAN using a standard CAT5 cable. The LAN switch supports MDI/MDI-X auto-sense crossover cables. Pin characteristics are consistent with 10/100baseT LAN standards.

## ISDN NETWORK

RJ45



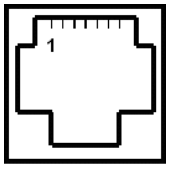

Pin connection:

Pin 1: N.C.
Pin 2: N.C.
Pin 3: Transmit data (+)
Pin 4: Receive data (+)
Pin 5: Receive data (-)
Pin 6: Transmit data (-)
Pin 7: N.C.
Pin 8: N.C.

The ISDN connector can be connected to a digital telephone line for data transfer rates of up to 128 Kb/sec. Pin characteristics are consistent with both to EURO-ISDN and NATIONAL-ISDN standards.

## PRI NETWORK (E1/T1,G703)

RJ45




Pin connection:

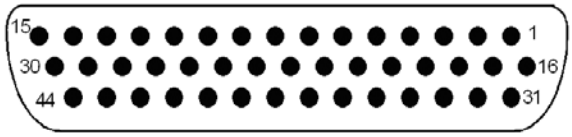
Pin 1: Receive data
Pin 2: Receive data
Pin 3: N.C.
Pin 4: Transmit data
Pin 5: Transmit data
Pin 6: N.C.
Pin 7: N.C.
Pin 8: N.C.

A digital telephone line can be connected to this connector for data transfer rates of up to 1920 Kb/sec or 2048Kbit/sec (data rate of 30B for E1/T1, data rate of 31B for G703). Pin characteristics are consistent with both EURO- ISDN and NATIONAL-ISDN standards.

## LEASED NETWORK

RS366,RS449,RS530,X21,V35

D-SUB HIGH DENSITY

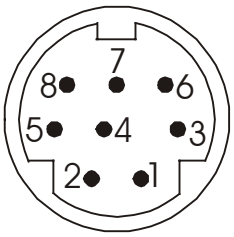



The optional network card provides a wide variety of interfaces. Pin-out and connections are described below:

| 44-pin female connector | Signal Name | RS366 25 M pins | RS449 37 M pins | RS530 25 M pins | X21 15 M pins | V35 34 M pins |
|---|---|---|---|---|---|---|
| 1 | NB2 | 15 | | | | |
| 2 | DLO | 22 | | | | |
| 3 | DSC | 13 | | | | |
| 4 | TT(B+) [C113] | | 35 | 24 | | W |
| 5 | TCLK(B+) [C114] | | 23 | 12 | 14 | AA |
| 6 | TX(B+) [C103] | | 22 | 14 | 9 | S |
| 7 | RX(A-) [C104] | | 6 | 3 | 4 | R |
| 8 | RCLK(A-) [C115] | | 8 | 17 | 6 | V |
| 9 | CDV35 [C109] | | | | | F |
| 10 | DSR449(A-) [C107] | | 13 | 6 | | |
| 11 | CTS449(B+) [C106] | | 27 | 13 | | |
| 12 | RING449(A-) [C125] | | 15 | | | |
| 13 | RING449(B+) [C125] | | TO GND | | | |
| 14 | RTS449(B+) [C105] | | 25 | 19 | | |
| 15 | GND [C102] | 7 | 19 | 7 | 8 | B |
| 16 | NB1 | 14 | | | | |
| 17 | NB8 | 17 | | | | |
| 18 | DPR | 2 | | | | |
| 19 | PWI | 6 | | | | |
| 20 | TT(A-) [C113] | | 17 | 11 | | U |
| 21 | TCLK(A-) [C114] | | 5 | 15 | 7 | Y |
| 22 | TX(A-) [C103] | | 4 | 2 | 2 | P |
| 23 | RX(B+) [C104] | | 24 | 16 | 11 | T |
| 24 | RCLK(B+) [C115] | | 26 | 9 | 13 | X |
| 25 | DSRV35 [C107] | | | | | E |
| 26 | DSR449(B+) [C107] | | 31 | 22 | | |
| 27 | CD449(A-) [C109] | | 11 | 8 | | |
| 28 | SELNET2 | | TO GND | TO GND | TO GND | TO GND |
| 29 | RTS449(A-) [C105] | | 7 | 4 | | |
| 30 | GND [C102] | 7 | 19 | 7 | 8 | B |
| 31 | NB4 | 16 | | | | |
| 32 | PND | 5 | | | | |
| 33 | CRQ | 4 | | | | |
| 34 | SELNET0 | | TO GND | TO GND | OPEN | OPEN |
| 35 | ACR | 3 | | | | |
| 36 | RTSV35 [C105] | | | | | C |
| 37 | CTSV35 [C106] | | | | | D |
| 38 | DTRV35 [C108] | | | | | H |
| 39 | RINGV35 [C125] | | | | | J |
| 40 | CTS449(A-) [C106] | | 9 | 5 | | |
| 41 | CD449(B+) [C109] | | 29 | 10 | | |
| 42 | SELNET1 | | TO GND | OPEN | OPEN | TO GND |
| 43 | DTR449(B+) [C108] | | 30 | 23 | | |
| 44 | DTR449(A-) [C108] | | 12 | 20 | | |

**DIAGNOSTIC**

MINIDIN 8P



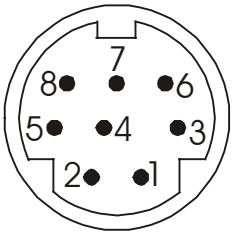

Pin connection:

| | | | |
|---|---|---|---|
| Pin 1 | Clear To Send | Pin 6 | Carrier Detect |
| Pin 2 | Ready To Send | Pin 7 | Data Terminal Ready |
| Pin 3 | Receive Data | Pin 8 | Ring Indicator |
| Pin 4 | Ground | case | shield |
| Pin 5 | Transmit Data | | |

The diagnostic connection is normally connected to a PC for control of system operations (calling , system configurations, etc.). Pin characteristics are consistent with USA RS 232 standard (DCE).

**DATA**

MINIDIN 8P




Pin connection:

| | | | |
|---|---|---|---|
| Pin 1 | Clear To Send | Pin 6 | Carrier Detect |
| Pin 2 | Ready To Send | Pin 7 | Data Terminal Ready |
| Pin 3 | Receive Data | Pin 8 | Ring Indicator |
| Pin 4 | Ground | case | shield |
| Pin 5 | Transmit Data | | |

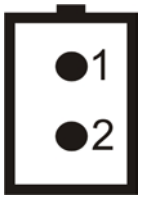
The DATA connection is for use with a data terminal using AVC8400 as a modem during a digital call (ex: for MS-NetMeeting). Pin characteristics are consistent with USA RS 232 standard (DCE).

**AETHRA AUDIO TRACK**

Proprietary Connection—use only with Aethra Tracking Camera.
**Do not use in any other configurations**.

**MODE**

MOLEX 2P

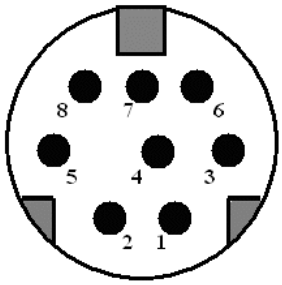



Pin connection:
Pin 1:
0V – not active
+6V – active, Mode 16:9 (if supported from the TV)
+12V – active, Mode 4:3
Pin 2: GND

Mode TV used as AVMODE function select on SCART connector.

## CAMERA CONTROL

MINIDIN

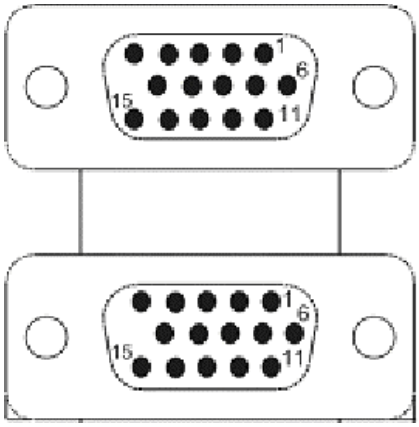



Pin connection:

Pin 1: Data Terminal Ready
Pin 2: Data Set Ready
Pin 3: Transmit Data
Pin 4: Ground
Pin 5: Receive Data
Pin 6: Ground
Pin 7: camera infrared
Pin 8: N.C.
Case: Shield

The CAMERA connection can be used for main camera control via VISCA interface with a pin-to-pin cable.

## XGA




Pin Connection:

Pin 1: Red
Pin 2: Green
Pin 3: Blue
Pin 4: ID Bit
Pin 5: Self-test
Pin 6: Red Return
Pin 7: Green Return
Pin 8: Blue Return
Pin 9: N.C.
Pin 10: Ground
Pin 11: ID Bit
Pin 12: ID Bit
Pin 13: Horizontal Sync
Pin 14: Vertical Sync
Pin 15: ID Bit
Case: shield

# Troubleshooting Problems

| PROBLEM | SOLUTION |
|---|---|
| Nothing displayed on monitor. | Check that the System is switched on. Check that the System monitor is on by pushing the on/off key at the front of the monitor. If the problem persists, contact the Aethra Help Desk. |
| I see no video camera signal in Self View and the picture is dark. | Check that the integrated video camera has no objects obscuring the lens.<br><br>Select as the input the video camera called “Room” using either the remote control or the web interface.<br><br>If the problem persists, contact the Aethra Help Desk. |
| No audio transmitted. | Check that there are no objects close to the microphone.<br><br>Use the integrated diagnostics (see related manual section).<br><br>If the problem persists, contact the Aethra Help Desk. |
| The LAN lamp (LED) is flashing, but I cannot successfully PING the system. | Check that the system’s IP address is not duplicated in the network.<br><br>If the problem persists, contact the Aethra Help Desk. |
| I cannot establish a data connection between the two systems. | Check that the data channel is enabled (see related section in this manual).<br><br>Check that the IP of the DataConf is the same as that of the system to be connected.<br><br>If the connection is IP, make sure that the check box “Use NetMeeting” is checked and the PC IP address to be connected is correct (see relevant section in this manual).<br><br>If the problem persists, contact the Aethra Help Desk. |
| I cannot make an IP connection and my IP address is correct. | Check that the system is switched on.<br><br>Check that the system can be reached using PING.<br><br>Check that the Gatekeeper for both systems is enabled/disabled.<br><br>If the problem persists, contact the Aethra Help Desk. |
| The Self View picture is black and white and is rolling from bottom to top. | Check that the video-standard used (NTSC or PAL) is correctly selected in the menu:<br>INSTALLATION → LOCATION |
| The picture transmitted from my equipment is too dark. | Ensure that the video camera is not pointing at a luminous source (neon light, window etc.). |
| Audio received is unclear and you only hear the audio in bursts. | Place the integrated microphone farther away from any speakers (TV, system speakers etc.).<br><br>Ensure that the volume is not too high and that echo cancellation is activated. |

# Glossary

**AES** Advanced Encryption Standard
**BRI** Basic Rate Interface
**CD** Collision Detection
**CE** Communitee European
**CIF** Common Intermediate Format
**CLIR** Calling Line Identity Restriction
**CODEC** Coder/Decoder
**COLR** Connected Line Identity Restriction
**CRC** Cyclic Redundancy Checking
**CSU** Channel Service Unit
**CTS** Clear To Send
**DHCP** Dynamic Host Configuration Protocol
**DTR** Data Transfer Rate
**IEC** International ElectrotechnicaCommission
**IP Address** Internet Protocol Address
**ISDN** Integrate Services Digital Network
**ISP** Internet Service Provider
**LAN** Local Area Network
**MCU** Multi-point Control Unit
**MIC** Microphone
**MSN** Multiple Subscriber Number
**NAT** Network Address translation
**NR** Noise Reduction
**NSF** Non Standard Facility
**NT** Network Termination
**NTSC** National Television SystemsCommittee
**PABX** Private Automatic Branch Exchange
**PAL** Phase Alternation Line
**PBX** Private Branch Exchange
**PC** Personal Computer
**PaP** Picture-and-Picture
**PIP** Picture-in-Picture
**PRI** Primary Rate Interface
**QCIF** Quarter Common Intermediate Format
**QoS** Quality of Service
**Router** A device that attaches two or morenetwork devices and forwards data accordingly.
**RTS** Ready To Send
**SIF** Source Input Format
**SNMP** Simple Network Management Protocol
**SPID** Service Provider Identification
**SQCIF** Sub-Quarter Common Intermediate Format
**SVGA** Super Video Graphics Array
**TCP/IP** Trasmission Control Protocol/Internet Protocol
**TCS** Terminal Control String
**TOS** Type Of Service
**TTL** Time To Live
**UDP** User Datagram Protocol
**UL** Underwriters Laboratories
**VCR** Video Cassette Recorder
**VGA** Video Graphics Array
**VISCA** Video System Control Architecture
**VNC** Virtual Network Computing
**WAN** Wide Area Network
**XGA** Extended Graphics Array

# USE AND STORAGE CONDITIONS

| | |
|---|---|
| OPERATING TEMPERATURE | 0°C ÷ +40 °C |
| RELATIVE OPERATING HUMIDITY | 10% ÷ 93 % (without condensation) |
| STORAGE TEMPERATURE | -40 ÷ +70 °C |

# REFERENCE REGULATIONS (CE MARK AND RELIABILITY TESTS)

| | |
|---|---|
| STORAGE | EN 60068-2-1 Test Ab (IEC 60068-2-1)<br>EN 60068-2-2 Test Bb (IEC 60068-2-2) |
| TRANSPORTATION | IEC 60068-2-32 Test Ed - Method 1<br>IEC 60068-2-64 Test Fdb (CEI 50-6/9) |
| OPERATING CONDITIONS | CEI 50-3<br>EN 60068-2-1 Test Ab (IEC 60068-2-1)<br>EN 60068-2-2 Test Bb (IEC 60068-2-2)<br>IEC 60068-2-14 Test Nb<br>IEC 60068-2-56 Test Cb<br>IEC 60068-2-6 Test Fc<br>IEC 60068-2-31 Test Ec<br>IEC 60068-2-32 Test Ed - Method 1<br>IEC 60068-2-64 Test Fdb (CEI 50-6/9) |
| EMC | EN 55022<br>EN 55024<br>EN 61000-3-2<br>EN 61000-3-3<br>FCC15 * |
| SAFETY | EN 60950-1 (IEC 60950-1) |
| CONNECTION TO TELECOMMUNICATION NETWORK | FCC 68 * |

* Equipment for USA market only

| | |
|---|---|
| CE | Hereby, Aethra S.p.A. declares that this device complies with essential requirements and other relevant notes of R&TTE Directive 1999/5/EC.<br>The declaration of conformity maybe obtained from:<br>Aethra S.p.A. - Via Matteo Ricci, 10 - 60020 Ancona - Italy<br>**www.aethra.com** - **info.aethra@aethra.com** |